

American Vegetable Grower

APRIL • 1960

25 CENTS

VARIETIES • CULTURE • PACKING • MARKETING

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Tomato Varieties

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Plastic Mulch Pays

Vegetable Areas of
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American Vegetable Grower

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Commercial Vegetable Grower
Market Growers Journal

VOL. 8

No. 4

APRIL, 1960



Cover photograph by H. Armstrong
Roberts shows field of beans.

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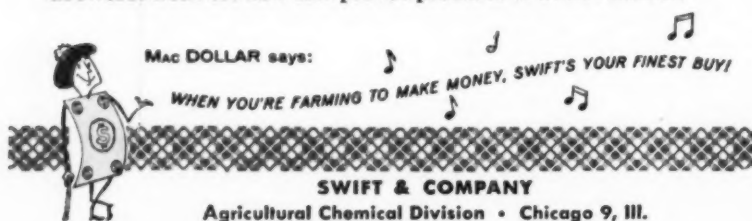
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LETTERS TO THE EDITOR

Don't Pinch Too Short

Dear Editor:

I have had several inquiries concerning the article "Stark's Famous Melons" in your February issue. There is an error in the statement, "In addition, each vine is pinched when they are 2½ inches long; this sets them into fruiting sooner." If this practice is followed, there might not be any melons. The recommended practice is to pinch the vines when they are 2½ feet long, not 2½ inches.

Millbrook, N.Y. Willard J. Roubal
Asst. County Agricultural Agent
Dutchess County

Inspired

Dear Editor:

I very much appreciate your recent issue with the article about chain stores. In fact, this article has influenced me to write a term paper on "Selling More Produce Direct to Chain Stores."

I must also do a research paper on roadside marketing, so if you have any additional material on this subject, I'd appreciate having it.

East Syracuse, N. Y. Concetta Barbogallo

We sent Miss Barbogallo tear sheets on roadside marketing from past issues and also suggested she obtain a copy of "Profitable Roadside Marketing" from her local library (also available from the Book Department of AMERICAN VEGETABLE GROWER).

Miss Barbogallo is a member of an active family of vegetable growers. Later she sent us the following comments.—Ed.

I'm a junior at Le Moyne College here in Syracuse. There are only two girls in my field. In some of my marketing courses, I'm the only girl. I'm in the business course because I have been in business all my life, so to speak.

My father is a truck farmer, was raised on a truck farm, and married a truck farmer's daughter. Most of my relatives have vegetable farms on the outskirts of Syracuse.

We raise vegetables such as tomatoes, broccoli, cauliflower, peppers, squash, corn, and cucumbers and bring our crops in to the regional market. We also have a roadside stand which is a Godsend. We sell quite a few of our vegetables right at the stand, sending only the surplus to the market. However, when we have a bumper year, my father sells the entire crop to a chain store.

We also have a fairly large greenhouse and raise some flowers for market. My mother does most of this work. I have four brothers and two sisters, and everything we do is a family project.

East Syracuse, N. Y. Concetta Barbogallo

Grel'ish

Dear Editor:

I've just received a registered trademark on the name Grel'ish which I've given to my special sweet relish made with green tomatoes instead of pickles. I'm sending you a few jars under separate cover to sample. What do you think?

Fort Wayne, Ind. Harry O. Williams

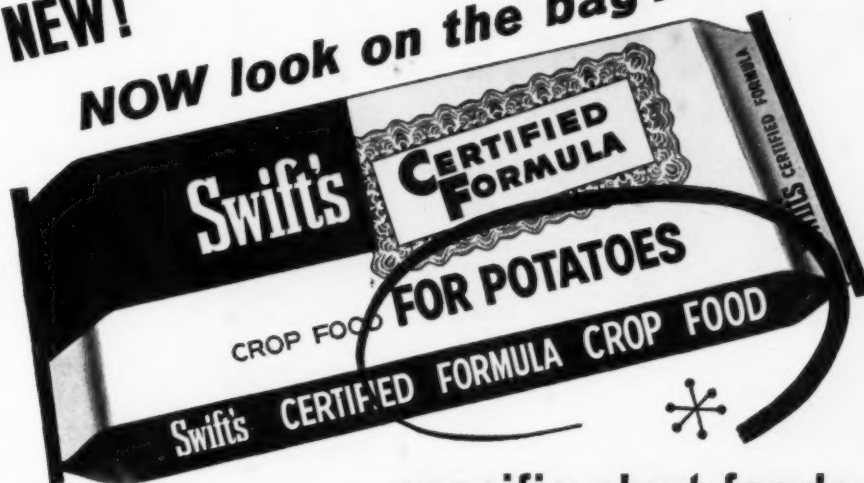
The Grel'ish arrived, and it was delicious! Reminiscent of the green tomato relish of years past.

AMERICAN VEGETABLE GROWER

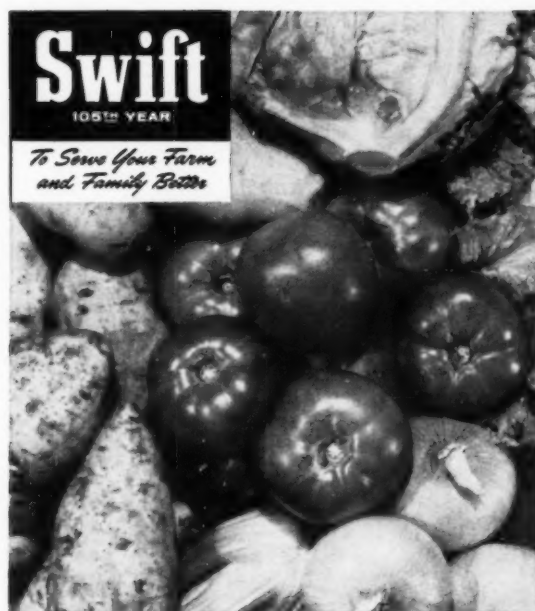
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6020-F29TR4**	30,000	One-Side	20 GPM at 400 PSI	400 gal.	100	25
6020-F24TR2**	10,000	Two-Side	20 GPM at 400 PSI	200 gal.	50	9

*Available in wheel and skid models.

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Answering Your QUESTIONS

Don't let your questions go unanswered. Whether large or small, send them with a four-cent stamp for early reply to Questions Editor, AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

PENTA FOR PLANT STAKES

Can penta solutions be used safely to treat tomato stakes or will we get toxic effects with its use? What about greenhouse rafters?—North Carolina.

Pentachlorophenol as a chemical is a contact herbicide and is not recommended for treating wood which will come in close contact with growing plants. It's true that penta treated stakes are sometimes used as grape stakes without difficulty. When used this way the stakes must be dry and free of oily residue which might rub off on a vine. The grapevine also has a much thicker bark or skin than a tomato plant and is therefore more tolerant of the treating solution.

Even though the danger of close contact is less than with the stakes, use of penta solutions on greenhouse rafters is also discouraged.

Cuprinol is recommended for treating wood, instead of penta.

STAKE PLANTER AND PULLER

Where can I get the tractor attachment for putting in tomato stakes and pulling them out? I'm sure there's also an attachment for rewinding the wire.—Wisconsin.

Rear's Farm Service, 750 River Avenue, Eugene, Ore., makes this equipment.

CABBAGES FOR CAROLINA

What early and late cabbages would be best for me to plant?—South Carolina.

H. A. Bowers of Clemson Agricultural College recommends Round Dutch for the spring crop. An early, cold-resistant variety, it produces medium size heads. Varieties of larger head type, such as Glory or Resistant Glory, may be used, but they are five to eight days later in maturity and seed prematurely if exposed to a cold winter. Round Dutch is also best for the fall crop.

Use Resistant Glory on land infested with yellows, and Oakview Ball Head is suggested for late maturity.

GREEN PEA SHELLER

Can you tell me who makes a green pea sheller?—Illinois.

Some sources are: Chisholm-Ryder Co., Niagara Falls, N. Y.; Dixie Canner Co., Athens, Ga.; Scott Viner Co., 1224 Kinneer Rd., Columbus 8, Ohio; Sinclair-Scott Co., 6245 State Rd., Philadelphia 36, Pa.

TENDERCROP SNAP BEAN

I've heard there is a new snap bean called Tendercrop which is supposed to be especially good for my area. Can you tell me more about it?—Oregon.

Tendercrop is a fine bush type snap bean well adapted to the Willamette Valley. Yields of 4 to 5 tons per acre were obtained from one picking by machine. This variety has dark colored seed and is therefore best suited to freezing. Tendercrop seems to be well adapted to all areas where snap beans are grown for freezing. The pod is round, straight, and dark green.

HOT BED SASH NEEDED

Where can I get hot bed sash?—Pennsylvania.

Gaines Hardwood Lumber, 18 Branch St., St. Louis 7, Mo.; Ickes-Braun Greenhouse Mfg., 2340 Wabansia Ave., Chicago 47, Ill.; Yoho and Hooker, 523 William-son, Youngstown, Ohio.

AMERICAN VEGETABLE GROWER

MARKETS...

TRENDS AND FORECASTS

Special Report

AMERICAN VEGETABLE GROWER, APRIL, 1960

VEGETABLE GROWERS FACE A RAPIDLY CHANGING MARKET. Today's market has fewer buyers and these fewer buyers want large volumes of uniformly graded and packaged produce. In 1959, 9% of the nation's retail food stores handled 68% of the produce sales. There are now only about 2000 real buyers of produce in the nation. Vegetable producers, it appears, need to become "professional sellers" to meet the "professional buyers" on the other side of the market. Grower group marketing organizations are one answer to the problem.

SMALL GROWER IN A "SQUEEZE." Does the small-scale vegetable producer have a future? A fair one if he's ingenious. Roadside selling, growing specialty items, and broadening his local marketing to include handling such things as bedding plants, nursery stock, Christmas trees, etc., seems to be his best bet for staying in business.

POTATO OUTLOOK UNCERTAIN. A good winter market situation, plus limited planting and poor crop progress in the South, presents a puzzle for late-state producers. This kind of setup can lead to over-optimism and over-planting. Study government-released "intentions to plant" information carefully before increasing your acreage. Best prices and returns to late-state producers have been in seasons when supply is short of or at least in line with demand. USDA recommends a reduction of 7% in early summer acreage, 3% for late summer, and a 7% cut in fall potato acreage for 1960.

HOW TO IMPROVE MARKETING OF FRESH VEGETABLES. A recent Texas Experiment Station bulletin lists the following steps for improving marketing: 1) Adopt standardized production practices; 2) move toward large-scale production and marketing units; 3) wider use of market news information; 4) reduce the number of assembly point markets; and 5) buy and sell according to strict grade standards. These can well apply to growers in other areas too.

ONIONS STILL IN TROUBLE. Late crop overproduction in 1959 led to over-supply and low prices this past winter. Southern production is progressing in fine shape. Don't expect any big increase in prices this spring. Intentions to plant in the early-summer producing section are up slightly over 1959. Late-summer and fall producing areas must plan to reduce acreage to prevent a repeat of 1959 price problem. The onion business has been a good example of production out of line with market demand.

ACREAGE-MARKETING GUIDES FOR FRESH VEGETABLES IN 1960. USDA recommends no change in acreage for most fresh vegetables for 1960. Exceptions are recommended decreases for early carrots, late sweet corn, early cucumbers, cauliflower, peppers, late lettuce, onions, and sweetpotatoes, compared to 1959. Small increases in acreages are suggested for late tomatoes, early watermelons, late snap beans, early cabbage, early lettuce, and fall-harvested carrots.

PROMOTION OF FARM PRODUCTS IS BIG BUSINESS. A recent survey by USDA indicates that over 1100 groups such as farmer co-ops, commodity associations, etc., are now promoting farm products in the U.S. They spent about \$67 million for this in 1958. About 38% of this was for dairy products, 32% for fruits, and only about 3% went for vegetables.

OUTLOOK FOR PROCESSING VEGETABLES. USDA acreage production guides call for an overall 3% decrease in planted acreage compared to 1959. If production is in line with these guides, supplies of processed vegetables for 1960-61 will be smaller but should be adequate to fulfill needs. Guides call for an increase in cabbage for kraut and limas for freezing, and decreases for snap beans, sweet corn, peas, and spinach. Cannerys have moderate to heavy carry-overs of beets, snap beans, pickles, peas, and tomatoes.



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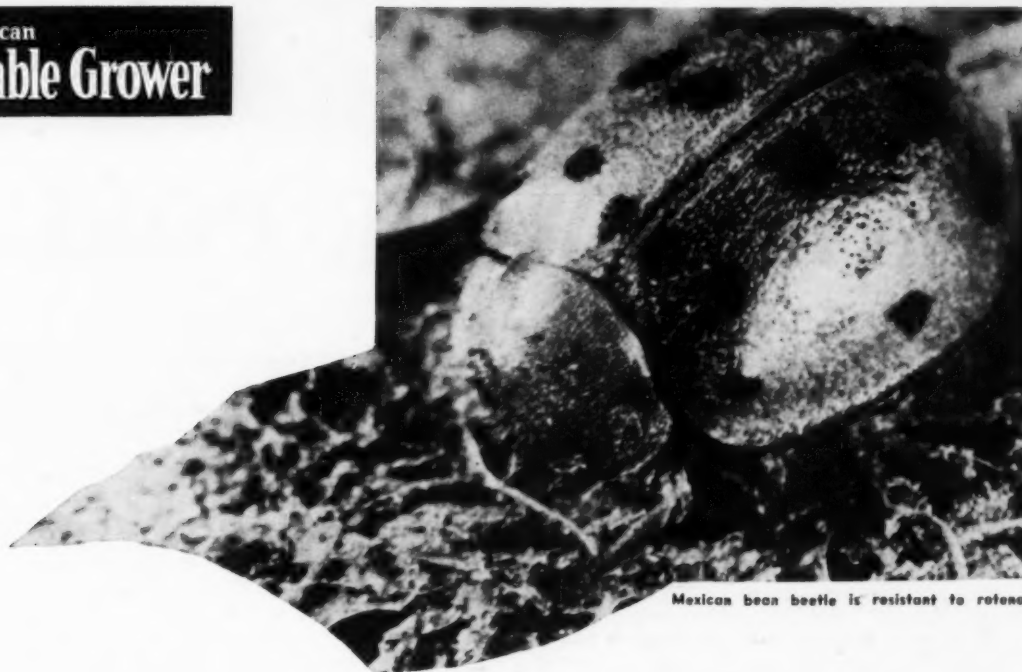
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Mexican bean beetle is resistant to rotenone.

MR. BUG *Fights Back*

By **R. KEITH CHAPMAN**
University of Wisconsin, Madison

ABOUT 10 years ago when there was widespread control failure of the housefly with DDT and other insecticides, these same materials were still giving excellent control of vegetable insects. At that time the author predicted that resistance would not become a major problem among vegetable insects in the field. The theory was that in the field there would be enough non-resistant insects continually diluting the tolerant population so that marked resistance would not develop.

The prediction, of course, was completely wrong because at the present time in Wisconsin resistance is by far the most pressing problem in vegetable insect control and this is probably true for the entire country.

The development of resistance among vegetable pests has followed the same general pattern as have the insects of medical importance and those attacking other crops. Little, if any, resistance in insects has developed to inorganic insecticides such as the arsenical and fluorine compounds. Arsenicals, for instance, have been used for 30 or 40 years against potato and cabbage pests with no apparent lessening in effectiveness.



Cabbage damaged by insecticide-resistant worms.



Cabbage looper developed resistance to DDT.

Little resistance has developed to plant product insecticides such as derris, pyrethrum, and nicotine. Most of the resistance has developed to DDT and its relatives, some to the aldrin, dieldrin, chlordane group, and more recently, a little to the phosphate insecticides.

Among insects the only instance of resistance to a plant material is that of the Mexican bean beetle to

rotenone. This insect began to show tolerance to rotenone in eastern states in the late 1940's. More and more material was needed to control



Rows with onions standing were treated for maggots with phosphate insecticides. Bare spaces between are where previously effective chlorinated hydrocarbons failed to save one onion.

it each year and now in most areas along the Atlantic Seaboard the Mexican bean beetle cannot be satisfactorily controlled with rotenone. Substitute materials which give control of this resistant pest include methoxychlor, parathion, Sevin, malathion, Dylox, and Diazinon.

The potato flea beetle began showing resistance to DDT after four or five years of use and tolerant populations now occur in the entire eastern half of the United States. Satisfactory substitutes include toxaphene, endrin, Sevin, and Thiodan. The resistance of the Colorado
(Continued on page 46)



NATIONWIDE POLL OF

Many disease-resistant varieties are now being grown in the U. S. as growers adopt new introductions

By WM. S. PORTE *U. S. Department of Agriculture, Beltsville, Md.*

USDA receives frequent requests for information regarding the tomato varieties currently used in different sections of the country. The variety situation is never static and in recent years shifts in the use of varieties have become increasingly more frequent. This no doubt is due in large measure to the extensive tomato breeding programs now maintained by federal and state institutions and by private companies. New productive varieties possessing more resistance to diseases and to

fruit cracking gradually replace the older established varieties in many localities.

In order to obtain a more authentic and up-to-date picture of the tomato variety situation, USDA asked the horticultural department of each state to furnish the following information on tomato plantings for that state:

- 1) The principal processing tomato varieties in order of their importance.
- 2) The principal fresh market to-

mato varieties in order of importance.

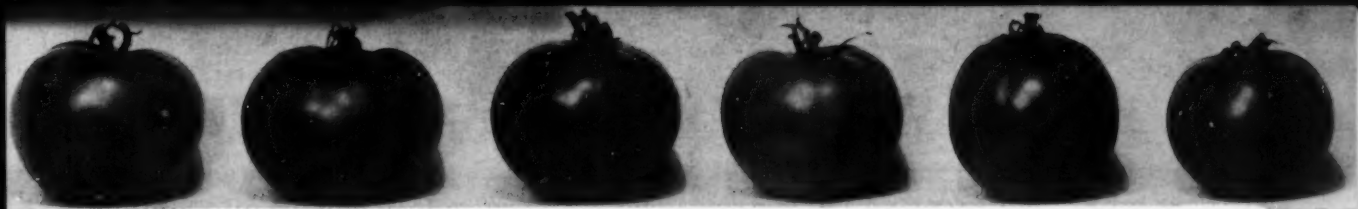
3) New commercial tomato varieties that look promising in order of importance.

This report should give a good idea of the geographic distribution of the principal varieties, and the preferences for them within states. The report, however, does not yield an estimate of the relative acreage and production of the several varieties on a national basis.

A few varieties seem to dominate

Principal Tomato Varieties Grown in United States . . .

STATE	PRINCIPAL PROCESSING VARIETIES	PRINCIPAL FRESH MARKET VARIETIES	PROMISING NEW VARIETIES
Alabama	Rutgers, Homestead, Campbell 146, Roma	Rutgers, Homestead (increasing)	Step 180 and Step 181
Alaska	No tomatoes grown for processing	Early Chatham, Fireball, Selley's Early Dwarf Hybrid	Weibull's Immuna (for leaf mold resistance), Michigan-Ohio Hybrid, Burpee Hybrid
Arizona	None	Pearson, Earliana	
Arkansas	Rutgers, Urbana, Indark	Gulf State Market, Homestead, Rutgers, Pinkshipper, Big Boy	Kokomo
California	Pearson A1, Pearson VF8, CPC 2	Earlypak 7, Pearson S, Pearson A1	
Colorado	Stone, Canner's Jewel, Colorado Red	Pearson, Firesteel	Kenesha (processing), Glamour (market)
Connecticut	None	Moreton Hybrid, Homestead 24, Big Boy, Rutgers, Glamour, Longred	Homestead 24, Cardinal Hybrid
Delaware	Campbell 146, Improved Garden State, Rutgers	Valiant Queens, Pritchard	Del. 14-2, Del. 13-2
Florida	Same as those used for fresh market	Homestead, Rutgers, Jefferson, Grothen Globe, Manalucie and Jefferson (for pinks or vine ripe)	Indian River and Homestead lines
Georgia	Community or home canning only: Rutgers, Big Boy, and others	Rutgers, Homestead lines, Moreton Hybrid, Big Boy, Manalucie (for local market), Marglobe	Big Early Hybrid, Early Prolific, Burpeana (for very early only)
Hawaii	None	Anahu, Homestead 24, Manalucie. Hybrids: Big Boy, N-5, N-13	
Idaho	None	None	Owyhee
Illinois	Improved Garden State, Campbell 146, Urbana	Sioux, Moreton Hybrid, Urbana, Rutgers	Glamour, Homestead
Indiana	Urbana, Improved Garden State, Rutgers x Pritchard F2, Rutgers, Kokomo, Homestead 24, Roma	Burpee Hybrid, Stokesdale, Valiant, Marglobe, Early Giant, Queens	Glamour (for fresh market)
Iowa	Campbell 135, Urbana	Rutgers, Big Early Hybrid	Moreton Hybrid
Kansas	None	Glamour, Moreton Hybrid, Sioux, Fireball	Early Hycress, Ball Early Hybrid
Kentucky	Rutgers, Stokescross 5 and 6	For greenhouse: Mich.-Ohio Hybrid, Ohio WR7, Spartan Hybrid. For field: Valiant, Big Boy, Early Giant Hybrid	Moreton Hybrid
Louisiana	San Marzano, Rutgers	Moreton Hybrid, Rutgers, Southland. For home garden: All-season, Dixie, Louisiana Pink, and Red Global	Red Global (L-3)
Maine	None	Trellis 22, Moreton Hybrid, Eastern States F1, Fireball	Moreton Hybrid, Eastern States F1
Maryland	Campbell 146, Improved Garden State, Rutgers	Rutgers, Campbell 146, Chesapeake, Homestead, Valiant, Moreton Hybrid	
Massachusetts	None	Trellis 22, Comet, Moreton Hybrid, Valiant	
Michigan	Rutgers, Urbana, Campbell 135 and 146, Garden State	Fireball, Moreton Hybrid, Glamour, Big Boy, Mich.-Ohio Hybrid (for greenhouse)	Bounty x Earliana
Minnesota	None commercially—Rutgers for home garden	Fireball, Valiant, Stokesdale, Burpee Hybrid	Big Boy, Early Giant
Mississippi	Processing not important	Rutgers, Big Boy, Manalucie	Surprise Hybrid U. of Mo., Supreme Hybrid, Campbell 146, Campbell 135
Missouri	Sioux, Rutgers	Burpee Hybrid 6113, Moreton Hybrid, Break O'Day	Early Chatham, Fireball, Alpha 5, Mereden Yellow, Moreton Hybrid, Siouxann
Montana	No processing at present	Earliana, Burpeana Hybrid, Early Hybrid	



Popular Tomato Varieties

the processing industry of the whole country. The Pearson lines with the new Pearson VF tomatoes that possess high resistance to both fusarium and verticillium wilts are the principal processing tomatoes of the far western states. Since in recent years more than half of the processed tomato products have been produced in these states, these varieties furnish over half of the processed tomato products for the United States.

In the central states Urbana and Garden State are prominent processing varieties. Rutgers is still much used in most of the eastern states with the new Campbell 146, resistant to fusarium wilt and to fruit cracking, making a strong bid for a large

share of this acreage. However, Rutgers is still listed as one of the principal processing varieties in 18 of the states. The "runners up," Garden State and Campbell 146, are each named by nine states as one of the principal processing varieties.

In the fresh market tomato industry the following varieties are most frequently mentioned as principal varieties used in the respective states: Rutgers, and Moreton Hybrid, 22 states; Valiant, 16 states; Big Boy and Fireball, 12 states; Homestead, 10 and Stokesdale, 9 states; Glamour, 7 states; Marglobe, Manalucie, Queens, and Sioux, each 6 states; Burpee Hybrid, Earliana and Pearson lines, each 4 states.

Tomato photos courtesy Asgrow.

The varieties most prominently used for growing the commercial greenhouse crop probably are Ohio WR7 and Michigan-Ohio Hybrid.

In the category of promising new varieties and hybrids the following were named most frequently: Moreton Hybrid, and Glamour, 8 times each; Campbell 146, Big Boy Hybrid, Big Early Hybrid, and Homestead lines, 4 times each.

There is no doubt of the wide interest in several of the heavy tomato-producing states for dwarf-type varieties suitable for mechanical harvesting. Nevertheless, no state reported any of these dwarf types among promising new varieties. It is too early to determine to what extent these dwarf types may be grown.

... as Reported by States in 1959

STATE	PRINCIPAL PROCESSING VARIETIES	PRINCIPAL FRESH MARKET VARIETIES	PROMISING NEW VARIETIES
Nebraska	None	Sioux, Early Wonder, Firesteel, Bounty, Red Cloud, Valiant, Stokesdale, Moreton Hybrid, Fireball, Early Chatham, John Baer, Earliana	Moreton Hybrid, Campbell 135, Campbell 146, Glamour
Nevada	None	Fresh market tomatoes imported from surrounding states.	Owyhee being tested
New Hampshire	Rutgers for processing green fruit	Fireball, New Hampshire Victor, Early Chatham, Glamour, Marglobe, Moreton Hybrid	
New Jersey	Campbell 146, Campbell 135, Improved Garden State, Queens, Rutgers, Roma	Moreton Hybrid, Big Boy, Valiant, Queens, Rutgers	Kille SU 15, US 357, Glamour, Penna 103
New Mexico	John Moran, Pearson B, Earlypak, Homestead 24	John Moran, Earlypak	Alpha Hybrid series 1 to 4, F. M. #338
New York	Red Jacket, Gem, Geneva 11, Longred, Glamour, Red Top	Fireball, Valnorth, Moreton Hybrid, Valiant, Glamour, Rutgers (green wrap), Manalucie	Cardinal, Cornell 54-179
North Carolina	No varieties listed—Not important at present	Homestead, Rutgers, Valiant, Manalucie	Moreton Hybrid, Big Boy
North Dakota	No commercial processing. Cavalier recommended for home processing	Cavalier, Bounty, Early Chatham	Shenandoe
Ohio	Rutgers, Campbell 146, Campbell 135, Stokesdale 4, Heinz F2, Improved Garden State, Glamour	Staked varieties: Moreton Hybrid, Valiant, Queens, Pritchard, Big Boy, Stokesdale, Glamour. Unstaked field grown: Rutgers, Moreton Hybrid, Fireball, Glamour, Stokesdale. Greenhouse varieties: Ohio WR7, Ohio WR3, Ohio Globe strain A	Big Early Hybrid, Campbell 146, Campbell 135, Indian River for late green wrap
Oklahoma	Sioux, Rutgers	Sioux, Stokesdale, Marglobe (green wrap)	Big Early Hybrid
Oregon	None	Earlypak, Aco, Moreton Hybrid, Burpee Hybrid, Wasatch (Moscow), Stokesdale, Queens, Pritchard, Glamour, Pearson, Victor	Big Early Hybrid, Moreton Hybrid, Glamour, OSC 327, OSC 382
Pennsylvania	Rutgers, Campbell 146, Campbell 135, Garden State	Rutgers, Stokesdale, Moreton Hybrid, Valiant, Glamour, Keystone Hybrid	Penn State F1, Hybrid 103
Rhode Island	None	Trellis 22, Marglobe, Moreton Hybrid, Queens, Valiant, Rutgers, Fireball, Big Boy, Vancross	Rhode Island Early, Glamour
South Carolina	Very little processing—use Rutgers	Homestead, Rutgers	Step 260
South Dakota	Sioux	Sioux	Siouxann, State Fair
Tennessee	Very few processed	Rutgers, Valiant, Homestead, Gulf State Market	Big Boy, Pinkshipper, Big Early
Texas	Process end of fresh market crop. Grow some Pearson and paste varieties entirely for processing	Rutgers (decreasing), Homestead (increasing), Texo 2	Rio Grande (South Texas)
Utah	Loran Blood, V.R. Moscow	V.R. Moscow, Moreton Hybrid, Big Boy	T33, Cal Pak for processing
Vermont	No commercial processing	Moreton Hybrid, Marglobe, Eastern States Hybrid, Fireball, Valiant	Campbell 146, Campbell 135, Aco, Rhode Island Early
Virginia	Rutgers, Campbell 146	Rutgers, Valiant	Campbell 146, Kokomo, Moreton Hybrid, Homestead 24
Washington	Stokesdale, Sioux, Bonny Best	Stokesdale	Moreton Hybrid
West Virginia	Rutgers, Chosapeake	Rutgers, Big Boy Hybrid, Moreton Hybrid	Hybrid 5725, Hybrid 543, (Peto)
Wisconsin	Garden State, Rutgers	Stokesdale, Stokesdale hybrids, Marglobe, Urbana, Fireball	Fireball, Glamour, Longred, Urbana
Wyoming	No processing	Sioux, Earliana	

THE VEGETABLE AREAS OF AMERICA

This is the twentieth in a series on the important areas of the United States. Previous issues covered New Jersey, Florida, Eastern Virginia, Arizona, Mississippi, Louisiana, Long Island, Maine, South Carolina, Maryland, Wisconsin, California's Imperial-Cochella, Central, and Coastal valleys, the South Coast, San Francisco Bay, and Tulare Lake Basin of California, Indiana, Georgia, Minnesota, and Alaska.—Ed.

By **DAVID G. WHITE**
Oklahoma State University, Stillwater

COMMERCIAL production of vegetables in Oklahoma is well established and integrated with about two dozen processing plants. In most of the state there are over 200 growing days each year and because of the rather mild winters some vegetables literally are grown out of season. In the eastern part of Oklahoma the sandy loams of river bottoms are particularly well suited for vegetable crops, and similar sandy loams are used in the Plains region.

Oklahoma is the meeting place for southern and northern vegetables. For this reason many species can be grown in the home garden, although only the nine vegetables listed on the map are important commercially.

Several rivers are used for irrigation of vegetables in Oklahoma in addition to frequent use of 20 major lakes. The Soil Conservation Service already has installed about 350 upstream flood prevention reservoirs ranging in size from 20 to 160 acres and is planning many more. This water is available for irrigation purposes in addition to 2800 wells and at least part of over 125,000 farm ponds. Approximately 300,000 acres of land which would be suitable for vegetables now is irrigated.

It is likely that growers in other areas of the United States who are being pressed by urban developments may move to Oklahoma some day to grow vegetables under irrigation on land now used for field crops.

As in most states the tomato is our most popular vegetable. Commercially, however, tomatoes are not grown extensively in Oklahoma although there are more than 2000 acres in some years. High temperatures relatively early in the summer interfere with fruit set and so most growers plant Stokesdale and Sioux as early as possible. In the eastern part of the state much of the tomato crop is sold to processors both in Oklahoma and Arkansas. In addi-



Lee Tyler and his neighbors near Keota use mechanical harvester to pick snap beans.

tion, truck growers near towns produce tomatoes for the fresh market.

A few breeding lines of dwarf-sized plants set fruit heavily and experimentally some of these have produced over 30 tons per acre under irrigation in southwest Oklahoma. Such high yields occur when plants are placed 1 foot apart in 3-foot rows. Certainly the commercial acreage of tomatoes in Oklahoma can be increased profitably on demand.

Irish potatoes, occasionally almost 6000 acres, are produced in the bottoms of the Red River in southwest Oklahoma and the Arkansas River near Tulsa. The three most important varieties are Triumph, Red Warba, and Pontiac. These usually are grown as early "new" potatoes and sold before those from major production areas enter the markets. In 1959 almost 15,000 tons sold for above the national average price to pay growers \$1,150,000.

Almost \$500,000 of sweetpotatoes are produced commercially in many of the counties where sandy loams are particularly suitable. Most of the 5000 tons produced consist of Allgold, Redgold, and Nemagold varieties developed by Oklahoma's Dr. H. B. Cordner. Commercial growers usually plant sweetpotatoes on land which has not previously been grown to this crop, or at least not for several years. In this manner they generally avoid damage from the major problem of nematodes.

Recently Oklahoma sweetpotato growers formed a statewide organization which they intend to develop as an aid to marketing. Good growers harvest at least 100 bushels per acre of

U.S. No. 1 roots and occasionally 200 or 300.

In the neighborhood of 2600 to 3000 acres of sweet corn is produced in Oklahoma especially for the early market. Part of the crop is processed but most sweet corn is sold locally on fresh markets. Golden Cross Bantam is the most popular variety although some Calumet is also grown. Sweet corn is grown commercially in Oklahoma at considerable risk because of occasional infestations by the ear worm. If our growers can market it between production south and north of us, then they usually make a nice profit.

Watermelons are an important crop and 10,000 to 15,000 acres usually are grown commercially in 45 of the 77 counties. About 38,000 tons of Charleston Gray and Black Diamond melons bring over \$750,000 when sold between those grown south and north of us.

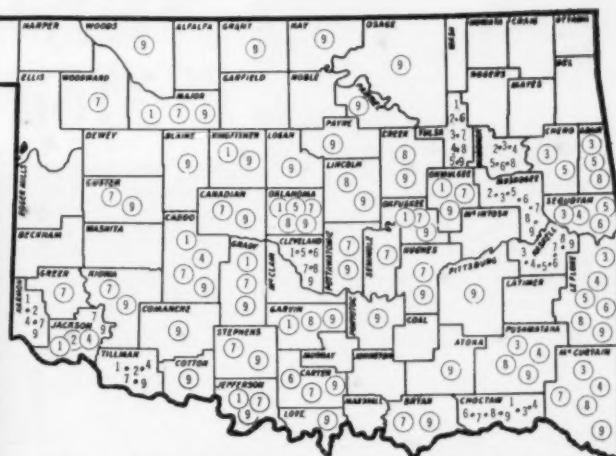
R. H. Southerland, of Rush Springs, is an example of a top-notch grower who also specializes in producing certified watermelon seed. Although he owns several hundred acres of land, Southerland usually leases about 200 acres covered with blackjack and post oak timber. The trees and brush are cleared with a bulldozer to expose sandy soil which overlays a clay sub-soil and is not infested with watermelon diseases or nematodes. Mature melons typical of the variety thresh out 80 to 100 pounds of seed per acre, a total of 16,000 to 20,000 pounds for Southerland.

Most watermelons, however, are produced in patches of 5 to 10 acres with occasional fields of 40 to 50

... OKLAHOMA



R. H. Southerland, Rush Springs, grows watermelons for certified seed.



Major Oklahoma vegetable crops include 1) cantaloupes, 2) Irish potatoes, 3) snap beans, 4) southern peas, 5) spinach and other greens, 6) sweet corn, 7) sweetpotatoes, 8) tomatoes, and 9) watermelons.



Combine harvests southern peas on George Jones' 1500-acre planting.



Gordon Childress cuts more than 100 tons of spinach per day in the Arkansas River bottoms.

acres. Usually they are grown on newly cleared land because production is better. Oklahoma melons are sold mostly to interstate truckers although many also are shipped in carload lots.

Many watermelon growers also raise cantaloupes, primarily the Mildew Resistant 45 variety. Approximately 1500 acres are planted in cantaloupes which sometimes yield more than 600 bushels per acre under irrigation. Growers plant as early as possible in order to have ripe melons prior to those from northern locations. Harvest begins in late July and generally continues

until sometime in October when the vines are killed by frost. Although the value of Oklahoma cantaloupes is only about \$250,000, they usually bring a profit to the grower.

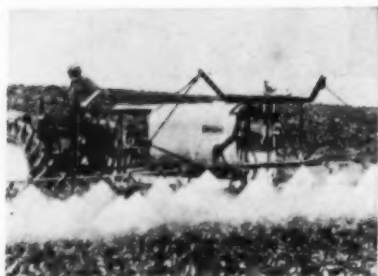
Snap beans are a major vegetable crop in Oklahoma, grown primarily in the eastern counties for processing. Some 5000 acres are planted as a spring crop and somewhat less than this as a fall crop. The main varieties now are Topcrop and Tenderlong 15 but experiments are underway to find or to develop a high quality snap bean particularly suitable for Oklahoma and for machine harvest.

Many of the growers who produce snap beans also raise southern peas, spinach, and turnip and mustard greens. For example, Lee Tyler, near Keota in Haskell County, farms 5500 acres of which about 1400 acres are bottom lands of the Arkansas River. Usually Tyler raises more than 1000 acres of vegetables each year, including 60 acres of spring snap beans and another 60 acres planted in the fall. He also usually raises 100 acres of sweet corn, 100 acres of turnip and mustard greens, 400 acres of spinach, and 400 acres of southern peas.

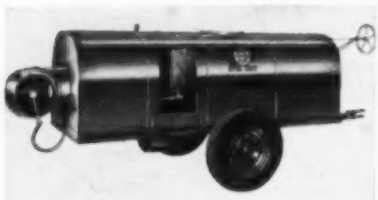
Tyler considers about 3 tons of beans per acre as a rather good yield under his conditions and, with the introduction of mechanical harvesters, he anticipates that the acreage of snap beans in his area will increase three or four times. Oklahoma growers received almost \$1 million for the 10,500 tons of snap beans they produced in 1959.

In the same area of the Arkansas River Valley, southern peas (edible
(Continued on page 49)

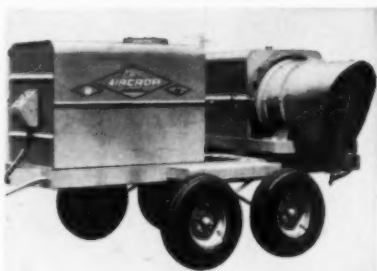
The New Sprayer Models



Hardie row-crop sprayer model 119WER has 10-row folding boom. Booms for spraying smaller or larger acreages of row crops are available. (Hardie Mfg. Co., Inc., Wilkes-Barre, Pa.)



Buffalo Turbine CH5-2 can be furnished for liquid spraying or spraying-dusting combination. CH5-2 has 200-gallon tank with mechanical agitation. (Buffalo Turbine Agr. Equip. Co., Gowanda, N.Y.)



John Bean Aircrop 30-RC covers 60-foot swath, up to 165 acres per eight-hour day. Adjustable vanes permit complete control of spray pattern. (John Bean Division, Lansing 4, Mich.)



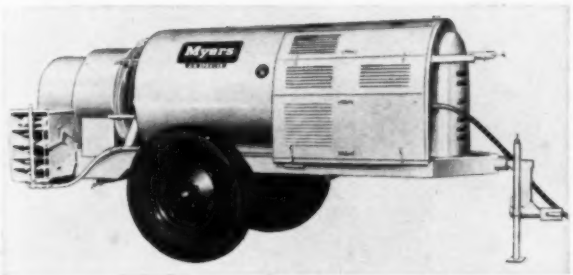
Oliver one-side Air-Mist can be rotated a full 210°. Covers 60-foot swath. 36 h.p. air-cooled engine. Available as attachment or complete unit. (Oliver Corp., A. B. Farquhar Div., York, Pa.)



Cover 80-foot swath, 25 acres per hour with Besler Power Package with row crop valve (complete sprayer, less tank, trailer). Four sizes. (Besler Corp., 4053 Harlan, Oakland 8, Calif.)



Choose either three-point mount or trailer model of Skibbe pressure sprayer featuring piston pump, plastic coated tank, adjustable booms. Available in 15- to 200-gallon sizes. (Skibbe Mfg. Co., Sodus, Mich.)



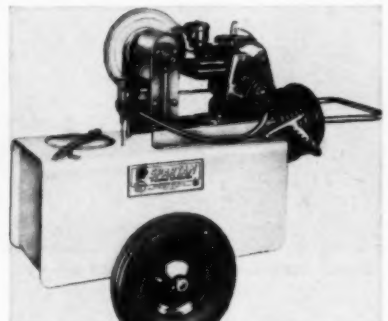
Cover up to 250 acres a day with Myers Field Crop 225. Has simultaneous two-way air delivery, 400-gallon tank. Remotely controlled deflector varies direct spray pattern. (F. E. Myers & Bro. Co., Ashland, Ohio.)



Discharge up to 1 1/2 gallons per minute with Smith Garden King Power sprayer. Choose either 15- or 30-gallon tank, each with 15-foot spray hose. (D. B. Smith and Co., Inc., Utica 2, N.Y.)



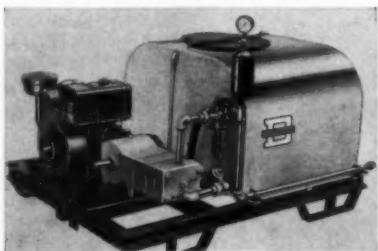
Pak-Tank's three section six-row vegetable boom can adjust to any row spacing. Is hydraulically mounted, also works on tractor power take-off. (Rear's Farm Service, 755 River, Eugene, Ore.)



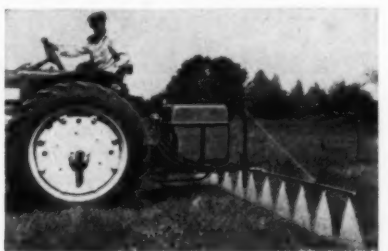
Oakes Spartan portable is featuring a new set of accessories. Available in gasoline-driven or electric-powered units; 30-gallon capacity tank. (Oakes Mfg. Co., Inc., Tipton, Ind.)



Trailer-mounted Century has 3-section boom which folds for transport. Two 55-gallon plastic-lined spray tanks will also handle liquid fertilizers. (Century Engng. Corp., Cedar Rapids, Iowa.)



Dobbins' enclosed crankcase lubricated pumps, 8 and 12 g.p.m., operate at slow speed. Bonded plastic tank lining, 100- or 200-gallon capacity. (Chamberlain Corp., Waterloo, Iowa.)



Hanson Trak-Pak mounts on any standard 3-point hydraulic hitch, may be equipped with either boom or Brodjet sprayer. Has 100-gallon tank. (Hanson Equipment Co., Beloit, Wis.)

ENOUGH MALATHION TO KILL 300,000 APHIDS



Powerful malathion continues to be the vegetable growers' number one aphicide. And aphids continue to be the growers' number one problem.

There's more to malathion.

Malathion gives fast, sure control of many other vegetable pests. In

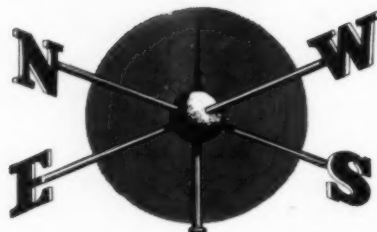
combination with Perthane, it offers effective, low cost control of resistant cabbage loopers. And, unlike most other phosphates, malathion can be handled safely *without* special clothing and respirator. The U.S. Public Health Service says,

"... the toxicities of malathion (oral and through the skin) are less than those of DDT."

Send for Malathion Handbook, PE5039, American Cyanamid Company, Agricultural Division, New York 20, New York.

CYANAMID SERVES THE MAN WHO MAKES A BUSINESS OF AGRICULTURE





- California Tomato Picture Rosy as Cannery Loosen Purse Strings
- Big Gain Expected in New York Canning Co-op Membership

Cannery Woo Tomato Growers

CALIFORNIA—Tomato growers who took a scouring in 1959 are watching a silvery lining emerge from economic clouds as processors begin to loosen 1960 purse strings.

Early negotiations indicate a price boost of \$1 minimum above the \$21.50 a ton average in 1959. Offers of fringe benefits—more tolerance, free boxes, higher hauling payments—surprise growers.

Some district buyers are coyly eager for more acreage although the overall cannery picture varies with some sharp increases, a few cutbacks.

Southern California reports processors are contracting for early Orange County tomatoes at \$27 a ton delivered—\$2.50 above the 1959 price. Around San Jose, hauling payments of \$4.75 per ton—up \$3—are reported.

Surveyors say plantings may go from 129,700 harvested acres in 1959 to 135,000 in 1960. Deliveries will run 3 or more tons above the 15.4 ton car average in 1959—the lowest since 1952. Cannery announce they will contract for 123,000 acres in California and claim they have contracts for all but 10% of that total. However, informed growers say only 100,000 acres were contracted by March. They maintain cannery need 2,500,000 tons to meet market demand.

The brightening of the tomato picture is due to several causes. Cannery carry-over is estimated at 15% of the annual supply, compared to 25% in recent seasons. Storms have destroyed millions of southern California nursery plants. Early spring-late winter seeding conditions are unfavorable. The prospective national plantings (293,250 acres) are 15% below average.

Perhaps, too, packers want to show what "jolly fellows" they are when not dealing with California Tomato Growers Association which quit co-operative bargaining last fall.—*W. J. Monahan*

Co-op Growing

NEW YORK—At the 14th annual meeting of New York Canning Crop Growers Co-operative at Batavia, N. Y., Secretary Bill Stempfle reported a 10% increase in membership in 1959 and predicted an even larger gain in 1960.

The bargaining association has a membership of some 1500 processing vegetable growers in a dozen central and western counties of the Empire state.

Harold Hartley, of American Farm Bureau Federation, explained to the members the operations of AFBF's new affiliate, American Agricultural Marketing Association, as a boon to bargaining operations. Prof. Brian How, of New York State College of Agriculture, discussed inter-regional competition in processing vegetables.

Cut Lettuce Acreage

ARIZONA—Lettuce growers in the Salt River Valley-Harquahala area who "lost

their shirts" on the crop last spring have curtailed their plantings this spring by almost 4000 acres, from 20,572 to 16,275 acres.

"And we may still have too much if weather bunches the maturity and harvesting," warned J. M. (Jack) Foote, supervisor of inspection of Arizona Fruit and Vegetable Standardization Service.—*Ernest W. Fair*.

Potato Processing Plant Planned

IDAHO—Idaho Industries, Inc., has announced plans to build a \$2 million potato processing plant about 3 miles west of Burley, according to Golden Grigg, president.

Some 4000 acres of Magic Valley land, purchased by the firm recently, will be used to produce the potatoes used in the new plant.

Ore-Ida Potato Products, Inc., will operate the plant which will employ between 600 and 700 persons at the start, and eventually 1200 people.

Construction was started about the first of March with operation scheduled for September.—*Ernest W. Fair*.

B & L Farms Sold—Again

FLORIDA—There's a postscript to the



MISS MICHIGAN RHUBARB

Pat Leiboldt, Utica, Mich., has been selected as Miss Michigan Rhubarb of 1960 by Michigan Hothouse Rhubarb Growers Association and Utica Rotary Club, co-sponsors of the annual rhubarb festival. Over 65% of all hothouse rhubarb grown in this country is produced in the vicinity of Utica (Macomb County), which is called the Rhubarb Capital of the United States.

story of B & L Farms of Princeton which appeared in the February, 1960, issue of AMERICAN VEGETABLE GROWER.

At that time, sale of the property—once considered the nation's largest tomato growing firm—through federal bankruptcy court to James J. Cerniglia, South Dade tomato shipper, and Robert Fincher, Miami, for \$2,500,000 was reported.

Now the property has been sold again—this time in five parcels—for a reported \$3,250,000. Cerniglia and Fincher were able to sell the farms within two months of their purchase for a profit of \$750,000.

The major portion of B & L Farms, including the tomato packing house, block-long garage, and all farming equipment, was purchased by C. R. Bull, president of Dade County Growers Exchange. The remainder of the 11,000 acres was sold in separate parcels of 365, 4000, 535, and 3000 acres.—*Porter V. Taylor*

Marketing Order Pays

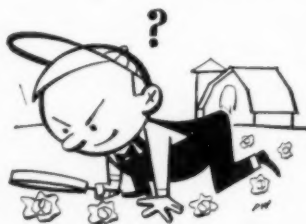
TEXAS—The first vegetable marketing order ever established in the Lone Star state helped Texas to regain a spot in the nation's tomato markets by eliminating low grade fruit.

Last season, the Lower Rio Grande Valley operated under a federal marketing order which permitted growers to ban shipment of low grades of tomatoes and also regulate the containers.

As a result of these controls, the quality of Texas tomatoes was the best on the average in the history of the state.

The Texas tomato harvest was worth \$4,944,000, topped only by onions (the state's No. 1 crop), \$14,192,000, and water-

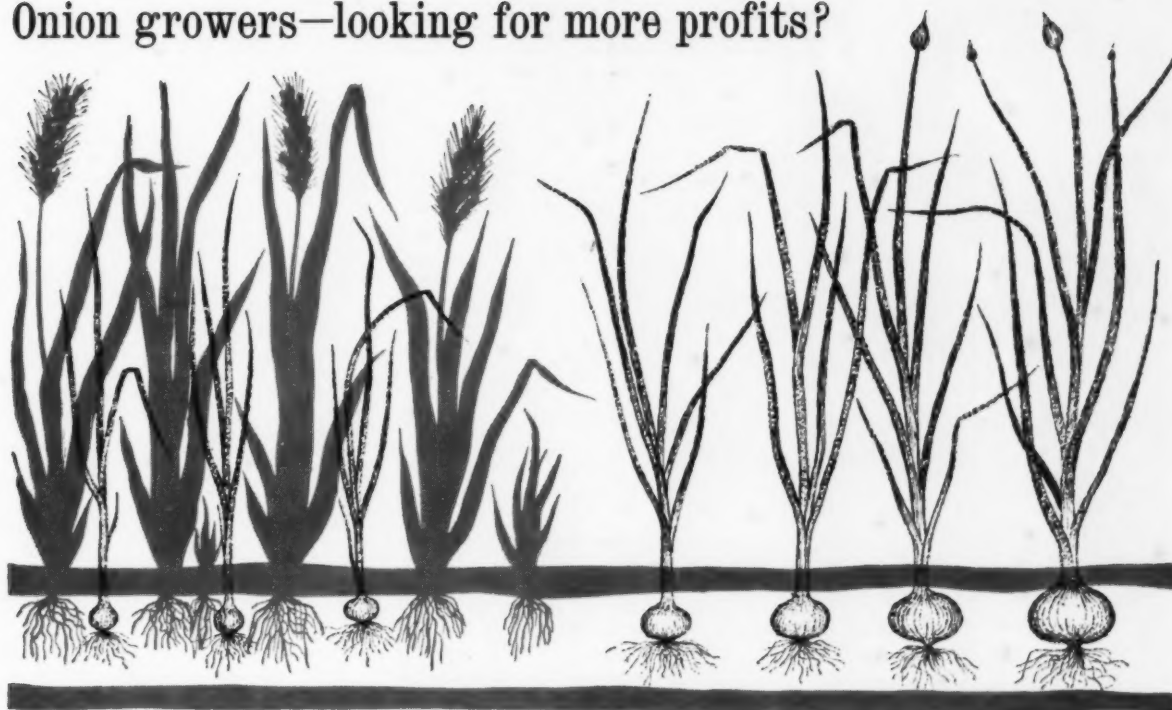
YOU be the EXPERT!



BOB WILSON's pickers first called his attention to the spots on his cucumbers. A yellow-brown liquid appeared to ooze from several places on the fruit. Later this dried to become a tan scab. The foliage was relatively healthy but with small, round water-soaked spots. No insects could be observed, the soil had been well fertilized, but the weather had been cool with heavy dews. What is your diagnosis?

Answer on page 31

Onion growers—looking for more profits?



Increase your onion yield—control weeds with CHLORO IPC

Chloro IPC is an extremely effective herbicide for use in pre- or post-emergence applications. It prohibits many weeds in onions grown in muck or mineral soils.

Chloro IPC is available as a 4 pound per gallon liquid emulsifiable concentrate used for preparing dilute emulsions for application just prior to emergence, or after emergence during the loop stage of growth or directed post-emergence sprays. Granular Chloro IPC is also available for application where its use has been established. Application must be avoided during the flag stage of the onion.

Increases yield—The use of Chloro IPC in onions has resulted in net gains of \$30 to \$54 per acre. Reduc-

tion of weeds makes more light, space, nutrients and moisture available to the onion crop.

No toxic accumulation—In normal use, Chloro IPC can be applied without danger of toxic build-up to following crops.

Easy handling—Chloro IPC can be used safely around animals and humans, simply by following a few normal precautions. Liquid Chloro IPC mixes readily with water, won't clog spray nozzles.

Increase *your* onion yield and cut weeding costs. Get a supply of Chloro IPC from your dealer. For complete information, just mail this coupon.

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Dept. 1953, One Gateway Center, Pittsburgh 22, Pa.

Gentlemen:

Please send me information on Chloro IPC for control of weeds in onions.

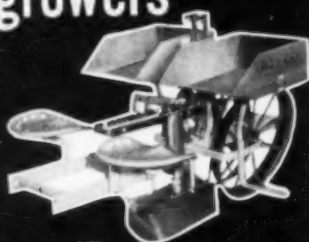
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vegetable growers



Powell "42" TRANSPLANTER



Let us demonstrate IN ACTION the many new advanced features of the MODEL "42" including

- the accurate, uniform METER-RITE valve.
- the adjustable-flange packer wheels
- the plant pick-up tray and dual plant hands

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Powell MANUFACTURING COMPANY, INC.
WILSON, NORTH CAROLINA

melons, \$6,825,000, according to USDA figures. Spinach, carrots, and cantaloupes each accounted for more than \$3 million.

Commercial Texas crops valued at less than \$3 million included lettuce, cabbage, green peppers, sweet corn, broccoli, honey dew melons, cauliflower, cucumbers, strawberries, snap beans, beets, and eggplant.

As a result of these returns, Texas ranked third among all states in acreage and production of fresh market vegetables in 1959.

AFBF Names Subsidiary

ILLINOIS—The farm commodity marketing and bargaining subsidiary of American Farm Bureau Federation announced last fall has been incorporated as an affiliate of AFBF under the name: American Agricultural Marketing Association.

Pollack Joins Rutgers

NEW JERSEY—Rutgers University's co-operative extension staff has a new member—Dr. Bernard L. Pollack, 40, who has begun work as associate vegetable specialist.

Dr. Pollack was formerly assistant professor of plant breeding at Pennsylvania



GROWERS ARE INVENTIVE, TOO!

This mechanical aid for harvesting cabbage, credited in February issue of *AMERICAN VEGETABLE GROWER* to L. H. Halsey and E. S. Holmes of Florida Agricultural Experiment Station, Gainesville, was really designed and built by Ashley Campbell, commercial cabbage grower in Hastings area. Experiments in Florida indicate that mechanical harvesting aids may cut labor approximately in half, reduce damage to cabbage heads about one-fourth.

State University. He has had considerable experience in plant breeding. In 1958, he introduced a hybrid tomato and Penn-lewis sweet corn. He will share responsibilities of extension vegetable program with W. Bradford Johnson, extension specialist.

South Jersey's sweetpotato growers must face up to the need for positive and immediate action on an industry-wide plan for improved marketing.

This advice came from Phillip Alampi, state secretary of agriculture, in recent talks before growers in Woolwich Township Hall and in the Vo-Ag School, Ham-monton.

The emergency measures that growers are taking now to move the 1959 crop out of storages emphasizes the urgency of the adoption of a long-time plan, Alampi stated.

Vinton N. Thompson, director of Division of Markets, State Department of Agriculture, suggested that growers might consider a marketing order. This could achieve increased acceptance, he said, thereby creating a demand for Jersey sweets and increasing growers' net returns.

Tour Market Site

MARYLAND—The Maryland Vegetable Growers Association held its 41st annual

meeting in Baltimore on January 14. The morning session included talks and discussions on chemical weed control, outlook information, and comparison of certain quality factors of Maryland and California tomatoes.

The afternoon session was devoted to a discussion of the New Marsh Wholesale Produce Market and a tour of the market site to inspect the facilities, still in the process of construction.

Officers elected for 1960 are Dale Hess, Fallston, president; William Kleinwachter, Preston, vice-president; Benjamin Ridgely, Prince Frederick, secretary; and Morris Todd, Jr., Dundalk, treasurer. Directors are Theodore Schmick, Preston; George Stratman, Sparrows Point; and John Foard, Hyde.—H. A. Hunter, U. of Md., College Park.

Meeting Highlights

OHIO—The 45th annual meeting of Ohio Vegetable and Potato Growers Association at the Neil House in Columbus was well attended by 400 representatives of the vegetable industry.

The meeting was held in three sections—potato, greenhouse, and truck crops—to enable growers to attend the section of greatest interest to them.

Greenhouse men were disturbed over the report on newly enforced state building code regulations that classify all agricultural construction on a par with industry. Under the code, a state permit fee of 75 cents per 100 square feet is levied, which in one case brought the tax on new greenhouse construction to \$1200.

J. B. Brown, director of OSU Institute of Nutrition and Food Technology, delighted his audience with a talk on the nutritional value of vegetables and their importance in reducing diets. "Eat vegetables," Brown advised America's 30 million fatties, "and live as long as your wife."

All officers of Ohio Vegetable and Potato Growers Association were re-elected. They are Jack Basquin, Big Prairie, president; Vernon Kraushaar, Cleveland, first vice-president; Carroll Bartter, Columbia Station, vice-president, potato section; Frank Buurma, Willard, vice-president, muck crops section; Edward Moeller, Cincinnati, vice-president, greenhouse section; Kenneth Zellers, Hartsville, vice-president, truck crops section; Leo V. Gaffin, Columbus, treasurer; and E. C. Wittmeyer, Columbus, secretary.

CALENDAR OF COMING MEETINGS AND EXHIBITS

May 12—Greenhouse Vegetable Day, Ohio Agricultural Experiment Station, Wooster.

May 24-25—National Produce Executives' Conference, Ambassador East Hotel, Chicago, Ill.

May 29-June 4—Caribbean Region American Society for Horticultural Science annual meeting, Rio Piedras, Puerto Rico.—E. H. Caseres, Sec'y-Treas., Londres 40, Mexico 6, D. F.

Aug. 2-3—Ohio Pesticide Institute, Ohio Agricultural Experiment Station, Wooster.

Aug. 14-18—South Carolina Farm and Home Week, Clemson College, Clemson.—Thomas W. Morgan, Chairman, Clemson College Extension Service, Clemson.

Sept. 11-14—Produce Packaging Association annual convention and exposition, Americana Hotel, Miami Beach, Fla.—Robert L. Carey, Exec. Sec'y, P. O. Box 29, Newark, Del.

Sept. 27-29—Florida Fruit & Vegetable Association annual convention, Hotel Fontainebleau, Miami Beach.—J. Abney Cox, General Convention Chairman, Princeton.

Nov. 28-Dec. 1—Vegetable Growers Association of America 52nd annual convention, Milwaukee Auditorium-Arena (Hotel Schroeder, headquarters), Milwaukee, Wis.—Robert M. Frederick, Exec.-Sec'y, 528 Mills Bldg., 17th & Pennsylvania Ave., N.W., Washington 6, D.C.

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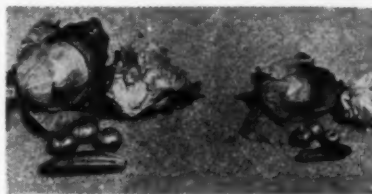
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Use GER-PAK Black Polyethylene Mulch to kill weeds safely without cultivation. The opaque sheeting prevents weed growth by blocking passage of sunlight. Ground conditions stay ideal—porous, moist, soft and weed-free. In addition, GER-PAK helps seedlings along and reduces rotting because crops do not come in contact with the soil. *Higher yields and earlier crops*—that bring top market price—are your bonus.

Lightweight, yet tough, GER-PAK Black Polyethylene Mulch comes in convenient-to-handle rolls in standard widths and lengths. Inert to soil and chemicals. Write for the name of your nearest supplier.



SPEEDY MACHINE LAYING can be accomplished with simple attachments to available farm equipment.



SIGNIFICANT YIELD INCREASES are traceable to GER-PAK Polyethylene Mulch. Fruits and vegetables are generally of better quality and rotting is minimized because they do not come in contact with the soil.

FREE DETAILED DATA—Send for GER-PAK Agri-News Bulletins No. 2 and No. 7 which provide latest authoritative data on mulching with polyethylene sheeting. Write Gering Agricultural Service, Dept. VG4.

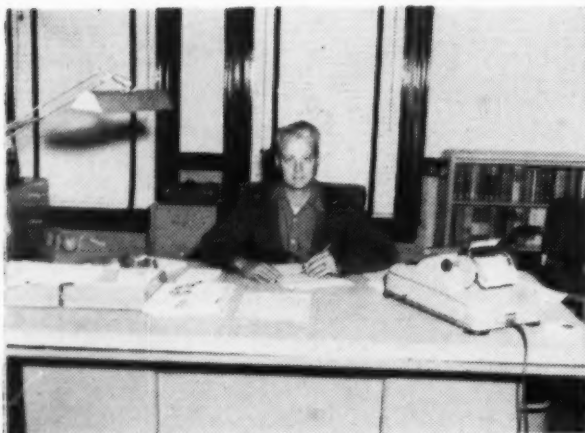
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Rohm & Haas field representative Bill Hughson joins Edmunds in a look at one of the water hazards on the new golf course.



Edmunds checks proper dosage of DITHANE M-22 as McQuade fills sprayer. Both like the easy mixing of this 80% maneb fungicide.



Edmunds discusses his DITHANE M-22 needs with Raymond Howard, Manager of the John Watson Co. store at Fort Fairfield.

Maine's E. Perrin Edmunds certified seed potato crop



DITHANE M-22...now 80% maneb
...from your partner in crop protection

DITHANE is a trademark, Reg. U.S. Pat. Off. and in principal foreign countries.

Judy, 5, and "Mike", 8, join their father on the front steps of the family home in Fort Fairfield. Pet Siamese cat, "Sim", relaxes while German Shepherd, "Ears", shows how he got his name.

AMERICAN VEGETABLE GROWER



Potato farmer-businessman E. Perrin Edmunds instructs farmhand Henry McQuade which field to spray next in his continuing potato blight control program.

prevents blight on his with **DITHANE M-22**

E. Perrin Edmunds, Fort Fairfield, Maine, recently ended his third term as president of the National Potato Council.

He is typical of today's progressive farmer—active community, state and national leader, successful businessman, and hard-working farm manager.

Currently, he is also a bank director, member of the State Legislature, president of C. A. Powers & Co., the John Watson Co., and Powers Starch Co., and building committee chairman for the local country club . . . now working on a new 18-hole golf course on which Edmunds will somehow find time to play.

Potatoes thrive on 700 of the rolling acres which make up the C. A. Powers & Co. potato operation. The crop is sold as certified seed. Culls and rejects are diverted

to the company's potato starch plant located in Monticello, Maine.

Like most of his fellow potato growers, Edmunds puts his faith in DITHANE M-22 (maneb) fungicide for protection from early and late blight.



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and vegetable profits**

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Send for your free booklet, you'll find it rewarding.

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ASPARAGUS

Was It Winter Injury?

SHORTLY after harvest started in 1959, asparagus growers in some of the Hudson Valley counties of New York complained about the poor quality of their crop. The main symptoms observed were hollowness, twisting, premature branching, and toughness of the spears. Symptoms of this nature had not been observed before and there seemed to be no reports in the literature. Circumstantial evidence gathered during the spring and summer strongly points to winter injury as the cause of the trouble.

Extension agents Dan Stein in Columbia and Roland Briggs in Rensselaer counties were the first to report the disorder. Other agents soon reported similar symptoms in the remaining Hudson Valley asparagus counties. The trouble appeared to be general, affecting both commercial and home garden asparagus beds.

Because of a rather severe winter with little snow cover the soil had frozen to a depth of 3 to 4 feet in this general area, resulting in rather severe injury to alfalfa stands. With this in mind plus the fact that crowns and roots dug up and examined showed discolored, sunken areas obviously not normal, winter injury was suspected.

All the symptoms on the spears were typical of moisture deficiency which causes the tender, thin-walled cells in the developing spears to lose water and shrink. Since the soils were well supplied with moisture, the trouble would have to result from a failure of the root system to absorb water if moisture deficiency were involved. It is possible the injury to the crowns and main roots reduced the development and functioning of feeder roots to the extent of seriously limiting the uptake and translocation of water.

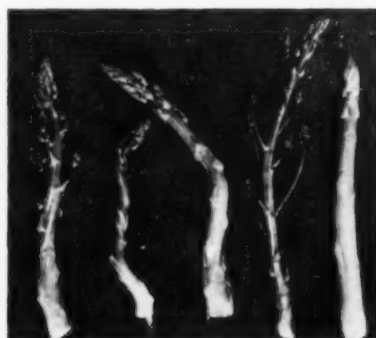
Further observations showed that asparagus fields in central and western New York were not affected even though the soil in these areas had also frozen to depths of 3 feet or more. Snow cover during the early part of the winter, however, had prevented early freezing of the soil while in eastern New York little snow accompanied the severe freeze that hit the northeastern part of the United States at Thanksgiving, 1958.

As there was no past experience on which to base recommendations, growers were advised to cease harvesting and to allow the fern to develop earlier than usual. This was no hardship since the crop was largely unmarketable anyway and it was

hoped that an extra long season for food manufacture and storage might help to repair the damage.

At a meeting of horticultural extension specialists in mid-June, 1959, it was learned growers in certain New England states—New Hampshire, Massachusetts, and Connecticut—had suffered similar damage. All plantings were affected regardless of age and previous management. Cecil Thompson, of Massachusetts, said growers in his state with 30 or more years of experience claimed never to have observed similar injury before. He also mentioned that in one affected field the fern or bush started to develop dieback but recovered following a good rain. This would tend to support the theory that the disorder basically was due to a moisture deficiency resulting from poor root development.

Extent of the damage to asparagus in the affected areas is still unknown. Last fall some growers in the



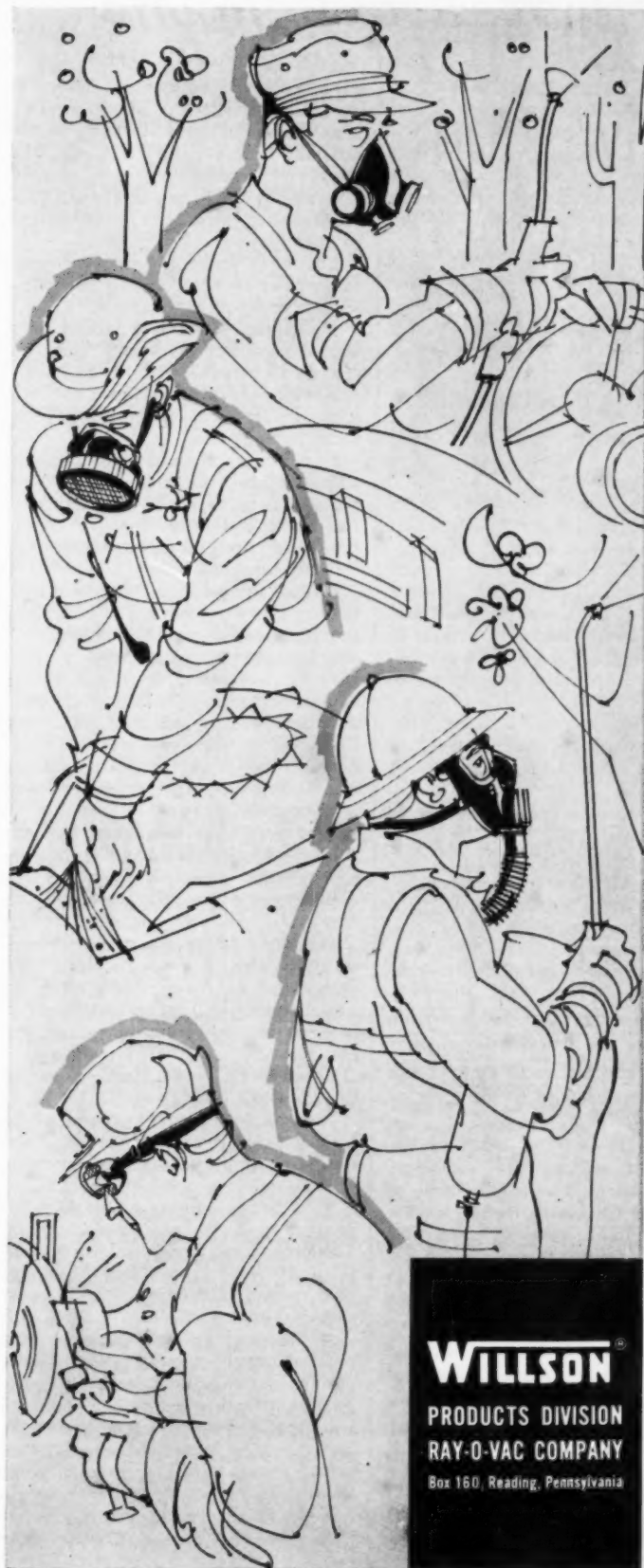
Four spears on left show effect of injury. Though usual size, many had hollow centers, were exceedingly tough. Spear on right is normal.

Hudson Valley reported their fields looked quite normal by the end of the growing season while a few said top growth in their plantings was weak with apparently some loss of stand.

The harvest season in 1960 should provide further information in answer to the question as to whether the asparagus beds suffered only temporary damage or the injury is of a longer, more permanent nature. In order to accumulate all of the information possible from this experience, growers should report to their county agent or agricultural college what happens this spring whether it is good news or not. If injury symptoms appear again in some fields, an attempt should then be made to determine, if possible, why some plantings recovered while others did not. —Philip A. Minges, Cornell University, Ithaca, N.Y.

Working drawings for an attractive, easy-to-build roadside stand are available for \$2.00 from AMERICAN VEGETABLE GROWER, Willoughby, Ohio.

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26

As It Looks To Me

By **JOHN CAREW**

Michigan State University

THERE is growing concern that many of our most successful farmers no longer look upon their county agricultural agents as the best local source of agricultural information and leadership.

"Joe is a good man. But he's so bogged down with office chores and committee meetings he hasn't kept up-to-date."



The situation varies with states and men. Jerry Mandigo of Michigan, Al Lesser of Colorado, Jack Underhill of California, and Ed Buckley of New York are superior field extension workers who have earned and retained the respect of leading farmers, primarily because of their technical competence. There are hundreds more like them.

But other hundreds have succumbed to pressure and become Committee Presiders and Report Preparers.

These pressures come from extension administrators and farmers. From administrative superiors who continually stress program planning, farm and home development, program evaluation, public relations, the Total program, the Whole Man, and other high sounding catch-phrases, forgetting that the true value of an agricultural extension program is almost always directly related to the technical competence of the extension staff.

Pressures from farmers are as persistent—to be secretary of numerous associations, chairman of county fair committees, and a multitude of other time-consuming chores that leave little or no time for more productive accomplishments.

The county agricultural agent cannot and should not be all things to all people. His greatest opportunity for service to the social and economic welfare of the members of his community is through technical competence in agriculture: Agriculture that must be defined, not only as farming, but as the business of providing people with plant and animal products.

Chaining him to a desk with paper

clips, report forms, and secretaryships is as illogical as demanding that the community doctor run the hospital fund-raising campaign and conduct mosquito control programs. He can do it, but only at the expense of his more important contributions to society.

Farmers, and particularly vegetable growers, can strengthen their local extension staffs by:

Protecting county agricultural agents against misguided local attempts to involve them in tasks unrelated or distantly related to their jobs of providing leadership in technical agriculture.

Forcefully reminding extension administrators that technical competence is an essential characteristic for successful extension workers—not to be taken for granted but continually stressed.

Every farmer who fights for a better extension service will earn the gratitude of his neighbors—and his county agricultural agent.

□ □ □

Our organic gardening friends will be more in evidence this year. Fortified by the toxic residue incidents, they will intensify their attacks on chemical fertilizers and pest control sprays.

The practices they stand for are sound—rotations of crops, composting of plant and animal wastes, increased use of organic matter, green manuring, and cover crops.

But their blind opposition to certain fertilizers, insecticides, and fungicides as being "unnatural" is based on emotion rather than logic—like personal preferences in religion and politics.

Discussions with them generate heat but not light.

Here are several key points to keep in mind if you cannot avoid the topic or are discussing it with people willing to view it objectively:

- Organic matter usually *does* improve crop growth and quality. The cover crop, green manure, compost pile, and crop rotation aspects of organic gardening are unquestionably sound.

- There is no valid scientific nor practical evidence to support the claim that plants raised with organic matter in the absence of chemical fertilizer will be free of insects and diseases. Witness the pests that attack plants on the millions of acres of peat and muck soils—both virgin and those tilled many years.

- Plants grown the "organic" way do not differ in nutritive com-

AMERICAN VEGETABLE GROWER

position from those raised with well-balanced applications of commercial fertilizer.

- Chemical fertilizers, insecticides and fungicides *can* harm plants and humans if used improperly—just as aspirin, penicillin, salt, and sugar are harmful in excess. We have learned to use them and are happier and healthier because they are available.

- Physical health is undeniably influenced by mental attitude. If an organic gardener is convinced that "organically-grown" foods are more healthful, he may actually feel better. In fact, this indirect virtue of the organic gardening movement benefits many of its followers. But scientific evidence to date indicates this cannot be associated with any differences in nutritive value of food.

□ □ □

For Sale! An office in Washington with a seat in legislative committee meetings and a telephone line to each Congressman. In return for 2 bushels of tomatoes, 2 boxes of sweet corn, or 2 bags of cabbage. Buyer also receives a monthly newsletter describing all legislation relating to labor, transportation, toxic residues, and imports.

The seller, Robert Frederick, secretary of Vegetable Growers Association of America, 528 Mills Bldg., 17th and Pennsylvania Ave., Washington, D. C., will accept a check for \$2 to save you the trouble of mailing the produce. Send \$10 and you'll be paid up for five years. **THE END.**

CUT FROST DAMAGE

WHEN spring frosts threaten, is it wise to cultivate? M. E. Marvel, assistant vegetable crops specialist, Florida Agricultural Extension Service, says "No."

Bare, compact soil, according to Marvel, will give more protection than loose, dry, cultivated soil or mulched soil.

Cultural practices offer one of the most reliable methods of preventing frost damage, according to Marvel. Lack of fertilizer or an unbalance of available nutrients causes crops to be more susceptible to cold.

Irrigation water may be used effectively for frost protection. With sub-surface irrigation, Marvel advises keeping the water table high when cold weather is expected.

If the flooding method is used, he cautions that most plants should be under water for only a short time. Some plants are more sensitive to water than others, he says. A few hours of water over celery can ruin it, but tomatoes and peppers can tolerate up to 36 hours under water if the water is removed rapidly.

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YOU GET—EXPERT PLANNING FREE OF CHARGE

The right machine, the right line to do the job you want accomplished. That's what you may expect and get when you ask FMC for their free planning service. There is no cost for this service.



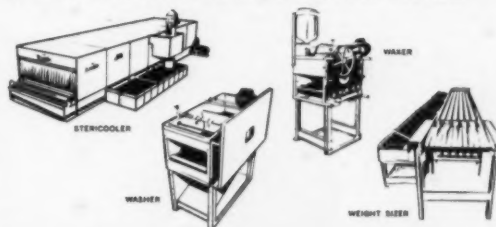
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Each machine FMC builds works better, lasts longer because FMC spends the time, and money to prove every unit before its placed on the market. Nothing is left to compromise. Nothing is left to chance. Be sure—get FMC equipment.



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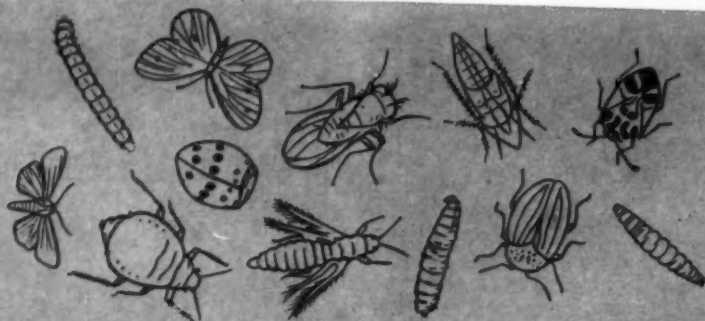
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controls most insects

on most vegetables



Vegetable Crops: BEANS (lima) • BEANS (snap) • BEETS • BROCCOLI • CABBAGE • CARROTS
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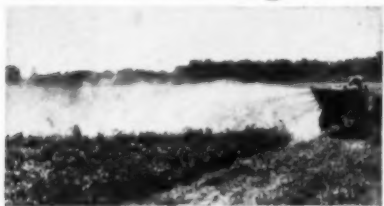
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Write for descriptive literature and
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Plastic Mulch Pays . . . if properly applied

By V. A. CLARKSON

Union Carbide Research Farm, Clayton, N.C.

INCREASED and earlier yields of many vegetables and fruits are possible through the use of black polyethylene mulch. This has been proved in many tests by state and USDA agriculturalists and commercial growers throughout the United States. Melons, cucumbers, beans, tomatoes, lettuce, and many other crops have responded well to plastic mulch—when it is properly applied.

It is difficult in most cases for growers to control many of the environmental factors which influence plant growth. Results of two-year tests at Union Carbide's Research Farm in North Carolina show, however, that several factors that influence plant growth can be controlled by plastic mulch, resulting in more vigorous plants and earlier and larger yields.

One factor, the control of most weeds that compete with plants for soil moisture and nutrients, results in more vigorous crop growth.

Another factor, the effective barrier afforded by the mulch between the ripening fruit and soil, which often is contaminated with fruit rotting organisms, resulted in a significant decrease in rotted fruit and generally cleaner fruit.

While the full effects of black plastic on temperature and fertilizer levels are not yet available, the following example should give the reader a good approximation of the value of this method.

Estimating that from one-half to two-thirds of each acre is to be covered, total cost of 1½ mil black polyethylene film will range between \$95 to \$125 an acre, depending on the cost of the film in your area and the quantity purchased. Machine laying will cost less than \$5 an acre.

For example, based on daily Raleigh market prices, the total cash value for mulched slicing cucumbers in the 1958 studies was \$1267, and for the unmulched, \$536. The mulched crop, then, brought \$731 more an acre than the unmulched. Deducting the average mulching cost of \$115 an acre, the profit from the mulched crop was \$616 more an acre than the unmulched. Net profit is arrived at by deducting any increased

picking costs and adding the additional savings from lower fertilizer, irrigation, and weeding costs.

There have been a few conflicting reports as to the practicability of black plastic mulches. Generally, these reports can be attributed to improper usage, which results in reduced effectiveness of the mulch. The following suggestions, based on research by the author and other horticulturists, will help to minimize improper usage and to increase yields.

- Do not expect plants which normally are not adapted to your area to benefit greatly from mulches. In some marginal areas mulches may increase the chances of success, but don't guarantee it.

- With 4-foot row spacing use 3-foot wide plastic; with 5-foot row spacing use 4-foot wide plastic. This



Plastic is unrolled and held firmly by rubber wheels in trench dug by front disks. Disks beside wheels anchor mulch with 2 to 3 inches dirt. Machine attaches to any standard tractor.

leaves enough room between strips to bury the edges and allow water penetration.

- Bury film edges at least 2 to 3 inches deep. A plastic mulching machine is commercially available. Do not stretch the plastic when laying as this will put undue strain on the material and may result in tearing.

- With adequate irrigation planting on a raised bed or ridge is superior to planting in a flat row. In arid areas with furrow irrigation it may be necessary to leave the furrow uncovered for water penetration. With sprinkler irrigation, water penetration in the uncovered areas and through holes around the plant is usually sufficient.

- Provide adequate moisture for seed germination and transplant survival by irrigating prior to mulching if needed. Irrigate immediately after transplanting. Plant seeded crops through the mulch, using a hand corn planter or similar instrument. Transplant through a hole cut in the mulch. A machine is being developed which

will both plant and transplant directly through mulch at commercial speeds.

- Follow recommended fertilizer applications for your area and crop. Additional nitrogen fertilizer is not usually needed during the growing season since plastic mulches are effective in reducing nitrogen losses from leaching. Overfertilization may result in decreased yields.

- The surface temperature of the plastic and air temperature above the mulch may be much higher than the soil surface temperatures. Therefore, transplanting during hot weather is not recommended as these high temperatures may cause premature wilting and poor survival. Normal spring temperatures are not high enough to cause damage. Natural shading by foliage will reduce the hazard of further heat damage.

- Weed control between plastic strips can be effected by shallow cultivation or chemical weed control.

- Black 1½ mil polyethylene is best for overall service. Thinner gauge films are being tested, but as yet are not recommended.

- Purchase only high quality film from recognized dealers and manufacturers as inferior film often deteriorates prematurely.

- Do not mulch your entire field the first time. Try the plastic on a limited scale and see the results. Become acquainted with its advantages and limitations—then decide for yourself.

THE END.

Plans for mulch layer and detailed information about costs and profits from mulching with black polyethylene film are available from Union Carbide Plastics Company, Division of Union Carbide Corporation, 30 E. 42nd St., New York 17, N.Y.

WATCH YOUR SPEED

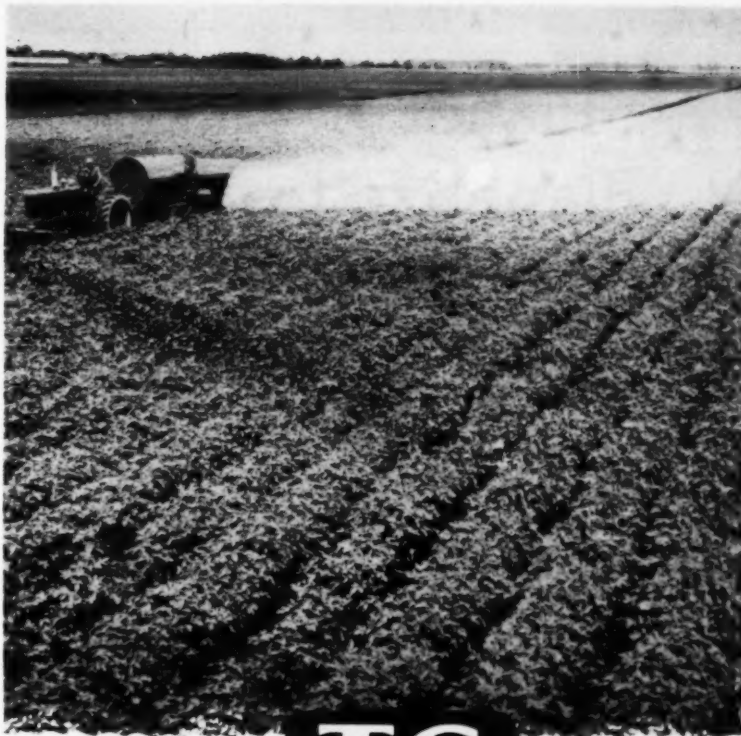
NEARLY 20% of tractor accidents in the agricultural field occur on highways, resulting in nearly 250 deaths each year, reports National Safety Council. Farmers are warned to cut highway tractor travel to a minimum, use proper lighting and flagging of towed devices or vehicles, and confine tractor highway driving to mature, experienced operators.

Answer to YOU be the EXPERT!

(See page 18)

The disease *Cladosporium* rot, commonly called scab, pox, or spot-rot. As Mr. Wilson had learned, foliage sprays have not been fully effective. So he ordered scab-resistant pickling varieties (Wisconsin SMR 12, SMR 15, or SMR 18) and will try several scab-resistant slicers (Ashe and Fletcher). He will also follow a three year rotation.

APRIL, 1960



TRI-BASIC MICRONIZED COPPER SULFATE

Through years of application, **TRI-BASIC COPPER SULFATE** has proven to be the superior fungicide. **TRI-BASIC** is compatible with other pesticides, gives the added value of correcting nutritional deficiencies where there is insufficient Copper in the soil, and reduces the danger of toxic residue.

Tennessee Corporation **TRI-BASIC COPPER SULFATE** is micronized to a mean particle size of 0.5 micron to give greater covering power. It is guaranteed to contain 53% Copper as metallic.

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TOMATOES

Dwarf Tomato

EPOCH, the first dwarf tomato for commercial planting, has been developed by Purdue University, Lafayette, Ind.

Epoch can be set either to plants or direct seeded. Ideal population rate appears to be between 15,000 and 18,000 plants per acre. Tests conducted at agricultural experiment stations showed Epoch's yielding ability to be extremely high, ranging up to 25 tons per acre compared to 7 to 10 tons for normal-sized tomato plants.

Fruit of the new wilt-resistant variety is normal sized and compares favorably with other red tomatoes in texture and taste. It is not recommended for home gardens.

Seed will be available this year from Agricultural Alumni Seed Improvement Association, R. R. No. 1, Lafayette, Ind.

Disease-Resistant Variety

A NEW fusarium and verticillium resistant tomato variety—VF36—has been released to the seed trade by University of California.

The new variety is suitable for both canning and shipping. It ripens two weeks earlier than Pearson and is the earliest resistant strain suitable for processing, according to University plant breeders.

The vine size is smaller and more open than Pearson. Fruit size has been consistently as large and the fruits are as firm as Pearson. Canning tests reveal that it is equal or superior in quality to other leading varieties.

VF36 is the only variety at the present time which appears to be suitable for early market that is resistant to both diseases.

New Herbicide

HOPE for a breakthrough in control of weeds in transplanted tomatoes is foreseen in the development of a new herbicide applied as a foliar spray. Further testing, however, will be necessary before Solan, the name of the new herbicide, is registered for commercial use.

Solan is a development of Niagara Chemical Division of Food Machinery and Chemical Corporation. In two comprehensive experiments, 2, 4, or 6 pounds of active material per acre gave excellent control of pigweed, lamb's quarter, ragweed, and other broadleaf weeds. Control of annual grasses, although good, was not quite as impressive.

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turnout
at harvest!

LOOK AT THOSE VEGETABLES! Healthy, happy, fresh-faced crops thanks to aldrin protection in the soil.

Potent aldrin kills crop destroying soil pests quickly and efficiently—lasts all season long. Controls cutworms, wireworms, root maggots and many other soil pests.

And aldrin is easy to use. Mix it with starter fertilizer and apply both at the same time or use it separately as a spray, or as granules. It's available from your local insecticide dealer under popular brand names.

Try it today. You'll find aldrin an inexpensive way to get healthy, profitable crops all season long.

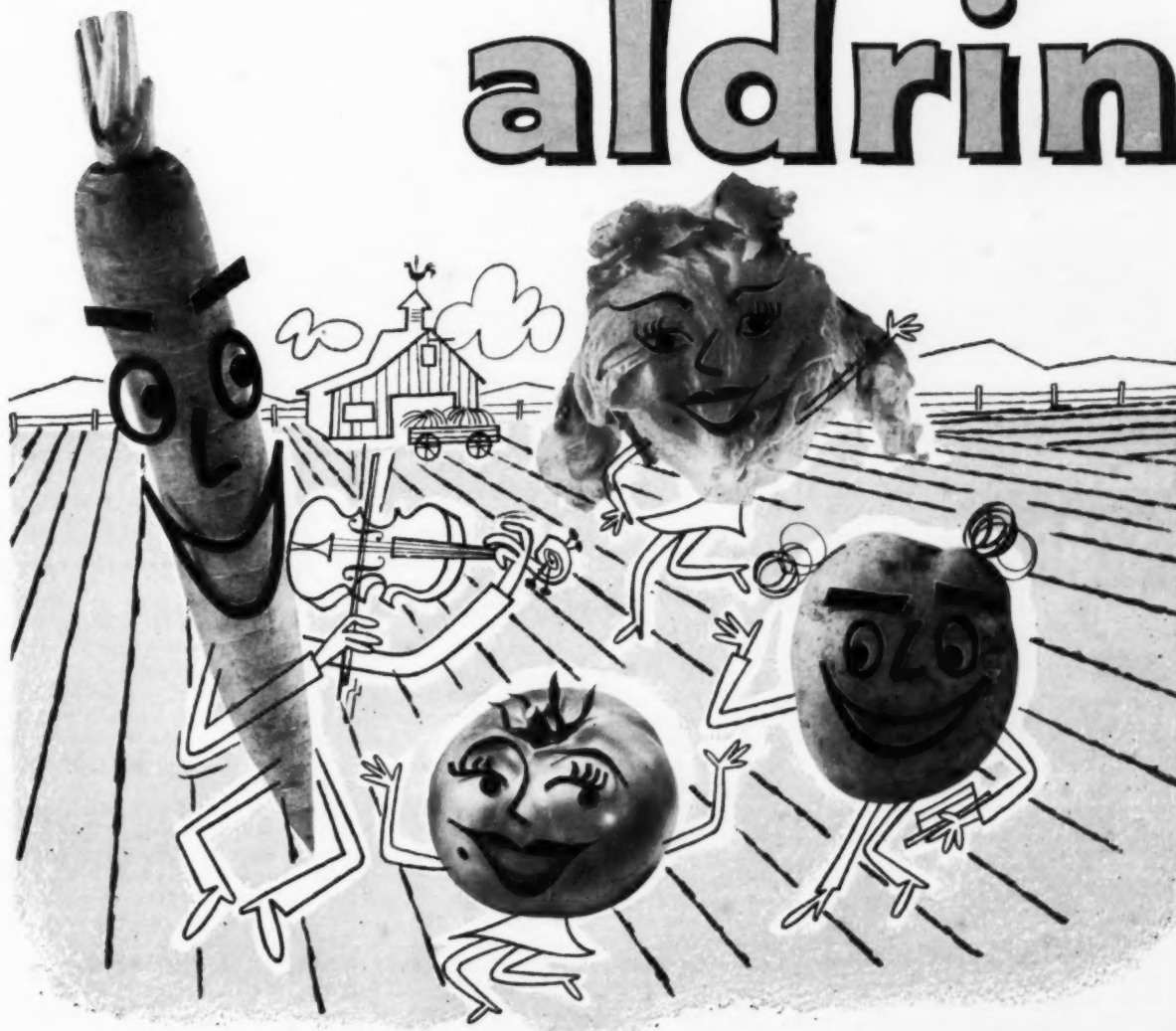
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Greenback. Early short stemmed small solid heads for close planting. Dark green $\frac{1}{4}$ lb. \$2.15; lb. \$6.50.

Badger Ballhead. For late summer or fall harvest. Very solid medium size, blue green. $\frac{1}{4}$ lb. \$2.00; lb. \$6.00.

Wisconsin Ballhead. Nearly round solid compact heads, larger than Badger Ballhead, $\frac{1}{4}$ lb. \$2.00; lb. \$6.00.

Ohio W.R. Jubilee Tomato. An improved, heavier yielding, more disease resistant Rutgers type. $\frac{1}{2}$ oz. \$1.50; oz. \$2.50; $\frac{1}{4}$ lb. \$7.50.

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MELONS

New Cantaloupe Variety

SEMINOLE, a new cantaloupe resistant to downy and powdery mildew, has been released by Florida Agricultural Experiment Station, Gainesville.

The new variety has much the same vigor, disease resistance, and quality as Georgia 47. In addition, it is more uniform in shape and size and has a more pleasing general appearance.

Under conditions of good soil moisture and fertility, the vine growth of Seminole is vigorous. It is well adapted to wet soils when grown on ample beds.

Seminole is normally a small melon and heavy for its size. Normal weight is 2 to 2½ pounds. Under especially favorable conditions many will weigh 3½ to 4 pounds.

LETTUCE

Can You Imagine!

DURING the summer season of 1959, lettuce growers in Colorado and California "buried the hatchet" and began marketing their produce together. How did two competitive states agree on such a program? By studying supply and market demands and then understanding the problems facing them.

The problem—and it was mutually understood—was that supplies of this highly perishable crop were too erratic. One day there wouldn't be enough, the next day too much. There had to be some way to regulate the flow to market.

Neither state could do it alone. Even though the Salinas-Watsonville, Calif., area produced five times the volume of lettuce grown in the San Luis Valley of Colorado, it had to be a co-operative effort.

So, the California lettuce growers asked the Colorado growers to help. They would set up a marketing order if the San Luis Valley growers would initiate and follow the same type of order.

To show good faith, the San Luis Valley producers promptly drafted their order. Frank Bennett, assistant chief, Division of Markets, California Department of Agriculture, worked out the mechanics and the growers passed the order four days before the California group initiated its regulations.

Basically the market had only one regulation. That was to control the

flow of lettuce. This was accomplished by prorating the volume to be marketed each week. For example, a grower could ship only one-sixth of his declared volume daily—no more. And there was no shipping, cutting, or cooling on Sunday.

The vegetable trade was informed of the available supply each day. A newly inaugurated Federal-State Market News Service provided growers, dealers, brokers, and the trade with current prices.

The San Luis Valley Lettuce Board of Control handled the program in Colorado. It consisted of seven producers and four shipper members. This board hired three disinterested field men from Arizona to survey each grower's field and give weekly estimates on available supplies. This information was compiled and exchanged with the California Lettuce Board of Control, and a prorate established.

Ken Warden, marketing specialist in Colorado, computed the lettuce acreage, allocation, and market news.

To defray the cost of administering the program, growers and shippers each paid $\frac{1}{2}$ cent a carton on their lettuce. Grower-shippers assumed the full assessment of 1 cent per carton.

Results of the program were very satisfactory—so satisfactory in fact, that the order was amended to include promotion, advertising, and research for 1960.

How much lettuce did the growers and shippers lose under the marketing program? Actually, none. There was an increase of 1001 carloads of lettuce shipped last year. In 1958, prices averaged 76 cents a carton; in 1959, they ran about \$2 a carton.

Successful? Lettuce growers in Colorado's San Luis Valley must think so for they have already approved a similar lettuce marketing order for 1960.

New Varieties

GROWERS in Arizona's Salt River Valley are praising two new lettuce varieties—R200-95 Great Lakes and Primaverde—for their uniformity of plants, fine dark color, and tender leaf. The new varieties were developed by Waldo Rohnert Co., breeder division of Seed Research Specialists, Inc.

Primaverde produces solid, non-puffy heads and holds color even following maturity. It is dark green into the butts. Primaverde has good cover overhead to prevent sunburn or frost damage on fall planting or scalding on spring planting.

R200-95 Great Lakes has uniformity of size and good cover for frost protection. The large butt carries color down to the stem.

AMERICAN VEGETABLE GROWER



THE OLIVER ONE-SIDE AIR-MIST SPRAYER

30° more rotation...38% more power!

FULL 210° ROTATION

15° beyond the perpendicular on each side—better compensation for wind and land conditions.

60 ft. of deep-down coverage from center of tread out on either side.

36 h.p. compared to the usual 26 h.p. in the engine gives 38% more spray power.

Here's the row-crop sprayer that lets you work *with* the wind and the contour of the land...gives you the extra power for an easier, smoother job of pest control.

Oliver's one-side Air-Mist sprayer can be rotated a full 210°—at the flick of a lever. Sturdy, 36 h.p., air-cooled engine is hooked directly up to the fan—no V-belts to wear out. All controls (throttle, air-vane adjustment, spray valve and head rotation) are easily reached from your tractor seat. Sprayer available as an attachment or a complete unit. Air blower for straddle rows also available.

Pull it with the brawny, 5-plow Oliver 880 tractor. Use gasoline, LP-gas or diesel fuel, whichever saves the most where you live. Get smooth-flowing 6-cylinder power, Independently Controlled PTO, Power-Booster Drive that offers 12 forward speeds. Here's enough tractor versatility for almost any job you can name.

Ask your Oliver dealer for a **TEAMED-POWER** demonstration on your own farm. Ask him about his 6% cash bonus trade-in plan.



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HOW MUCH WORK DO YOU DO FOR NOTHING?

If you spray with a boom sprayer you're spending three times the labor and time you should—and you're not doing as good a job as you would with a

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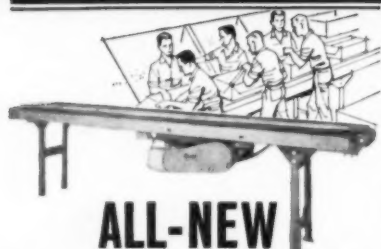
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What's the answer to CANNER BOYCOTTS?



The answer to that question is a business partnership between grower groups and processors. How to attain that end is discussed by Bill Stempfle in this abstract of his talk given at the 41st annual convention of American Farm Bureau Federation. Bill is secretary of the 1500-member New York Canning Crop Growers Co-operative.

By W. S. STEMPFLE

ONE of the difficult problems facing the agricultural industry is the relationship between processors and grower-bargaining associations.

In spite of professions of good will, processors are violently opposed to grower-bargaining associations. Often they refuse to negotiate with the association. Let me cite an example.

The membership of New York Canning Crop Growers Co-operative is concentrated in western New York. However, there is a substantial processing vegetable production in the central area of the state. In the spring of 1958, growers of a central New York cannery subscribed to membership in our association. The action was prompted by the fact that they were receiving \$27 to \$30 per ton for corn as compared to the co-op's price of \$30 to \$34.

After much hesitation, the processor met with the grower committee. He told them he knew what he could pay for corn and if they could not grow it for that price there was nothing to talk about.

Later, the canner wrote me a curt note to the effect that he would have nothing to do with the co-op or any other union.

For the past two years, 100 farmers—all experienced growers located within an area of 10 to 15 miles of the plant—have not grown sweet corn for this canner. To obtain his supply, the processor had to establish a new group of growers, some of whom are located as far as 50 miles away. And to fill out the pack, he was forced to purchase fresh market corn.

The refusal of this processor to negotiate resulted in a considerable increase in cost for raw product and plant operations.

Still another example of processors' opposition is the raid made on our membership a year ago by a national organization with which our association has contracted for a long time.

In November of that year several meetings were held of broccoli and

cauliflower growers. At each of these meetings the growers voted in favor of putting these crops under bargaining.

Our board of directors refused to accept the crops because of the small acreage represented in our membership. Even so, the processor put field men on the road during the entire month of December (our membership cancellation period) to inform our people that as members of NY-CCGC they would not be offered contracts for broccoli and cauliflower.

In addition to the processors already cited, there are two national canners in New York who refuse to contract with our members.

The cost of the raw product is not the major part of the processor's costs. A study made by National Canners Association comparing the cost of processing vegetables in 1957 with 1946 to 1949 shows labor costs increased five times as much and the cost of cans four times as much as the raw product cost.

Too often processors pay too much attention to the contract price and too little attention to total cost in terms of availability of supply, convenience and cost of fielding, and of harvesting and supply.

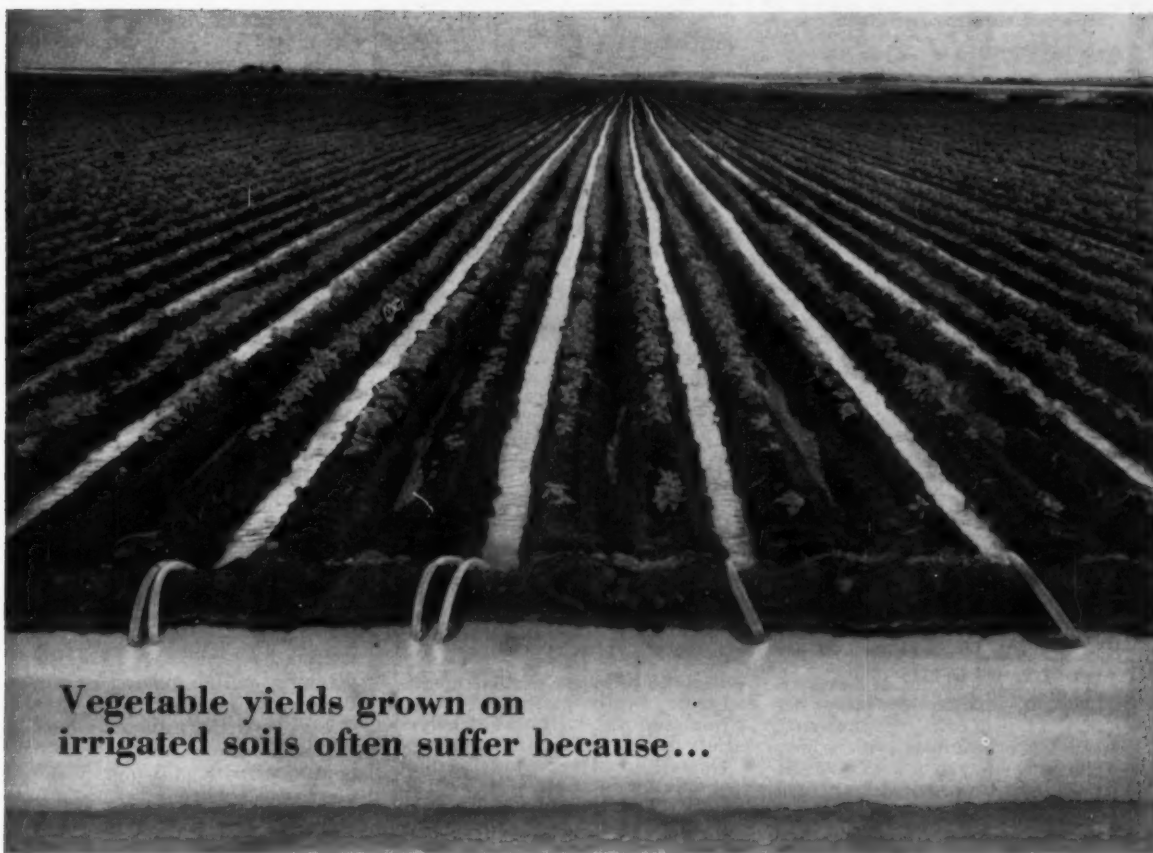
But price is only one of several reasons why growers negotiate contracts. The cost of seed and harvest and hauling, and the delivery schedules and closing dates of the factory, are matters in which growers have a very real concern and about which they are entitled to exercise their judgment.

One of our tomato contracts which has a 30-hammer per acre per week limitation clause was interpreted by the processor this past season to mean to apply to a five- rather than seven-day week although the plant operated seven days a week during the peak of the harvest. This resulted in growers losing considerable tonnage.

The consequence of that experience is to discourage growers from improving production.

The industry must find a way to improve the relationship between processors and grower-bargaining

AMERICAN VEGETABLE GROWER



Vegetable yields grown on irrigated soils often suffer because...

Vital Magnesium Washes Away

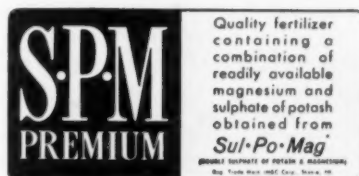
The job of keeping an adequate supply of magnesium in the soil has become a serious problem in vegetable growing areas.

One reason for this is *leaching*. Vegetables are usually grown on sandy, porous soil that has poor magnesium holding capacity.

Here's what you can do about it...

You can lick the problem with yearly applications of a complete mixed fertilizer containing *Sul-Po-Mag*. Sul-Po-Mag is an excellent source of magnesium and sulphate of potash. It is water-soluble to go right to work. But . . . and this is important . . . *it dissolves at just the right rate to feed crops throughout the entire growing season*. Sul-Po-Mag is neutral in reaction and low in chlorine.

Next time you buy mixed fertilizer, look for the SPM seal on the bag. Or better yet, ask for Sul-Po-Mag by name. Mail the coupon below for full information.



Quality fertilizer containing a combination of readily available magnesium and sulphate of potash obtained from **Sul-Po-Mag**

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Look for this identifying Seal of Approval when you buy. It's your assurance of extra-value fertilizer.



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Friday turbine-blast straw spreader, powered by 2-cylinder 18-hp. Wisconsin Engine, mulches more than an acre an hour. Made by Friday Tractor Co., Hartford, Michigan.



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Whether it's a case of turbine-blast straw spreading, power-hoe cultivation of row crops, spraying, dusting, or pruning...you're 'way ahead when you use Wisconsin-powered self-propelled equipment.

You save precious man-hours and costly manpower. *One man* out-works a crew using other methods. You speed up field work, cover more ground, keep ahead of the weather. You can handle more acreage with less labor and produce more at lower cost.

If the job calls for power equipment, take a tip from mechanization-minded farmers — *let a Wisconsin heavy-duty air-cooled Engine handle the heavy work!* These rugged engines are always

ready to go in any season, operating efficiently at temperatures from sub-zero to 140° F. Heavy-duty design and construction provides the built-in stamina that stands up to the toughest field work. Load-lugging high-torque performance keeps the engine rolling and the equipment moving through sudden shock loads and heavy going.

There's a "Wisconsin" of the right size (3 to 56 hp.) to fit practically all types of equipment. Electric starting available on all models. Specify "Wisconsin Power" for your equipment. Write for name of our nearest Wisconsin Authorized Service Station and ask for free copy of Engine Bulletin S-249. Address: Dept. F-40.



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associations. The pressure of increasing costs and declining prices will force more growers to organize themselves into bargaining groups. And fair and equitable contracts can only be resolved by the joint consideration of growers and processors.

Bargaining associations pose no threat to the solvency of processors. There are several reasons why this is true. Since membership is voluntary, the association does not have monopoly control over production. There are non-member growers who will contract at the price offered by the processor. Another reason is that a relatively high price would result in such competition for acreage among the membership that it would threaten the existence of the association.

Bargaining associations *can* and *will* help the processing industry. They will stabilize price between seasons of long and short supply. And they will somewhat equalize price between various areas of production.

Grower associations want to work with processors, not against them. They are ready and willing to co-operate with processor associations in planning and promoting research in the production of better quality crops and in reducing production and harvesting costs. And they are willing to co-operate with individual canners in matters of more efficient and economical field operations.

If processors refuse to negotiate with bargaining associations, they leave growers only two alternatives:

- To join groups with strong labor affiliations and support which would use labor union tactics.

- To petition for marketing agreements and orders which would make participation in the program mandatory and result in a closed shop in agriculture.

If the decision is to be their own, growers will reject these alternatives in favor of grower organizations in which membership is voluntary and which have the intention and purpose to promote the welfare of the industry as well as to represent the interests of the producers.

It is the earnest plea of all bargaining associations that they may have fair and honest treatment by processors and that they may be accepted by the industry as business partners.

Processors have much to gain by such a relationship and nothing to lose. And the continuation of the present attitude of lip service co-operation and violent opposition can only result in forcing growers to accept the overtures of organized labor or to demand government programs that would eventually socialize agriculture and perhaps in time, the processing industry itself. **THE END.**

NJVGA NEWS

Plan 1960 Contests

AS NJVGA enters its second quarter century, there is a growing realization of the need to recruit trained personnel for the diverse specialized fields of production, marketing, manufacturing, business, and industry.

A recent study conducted in Michigan showed almost three Michigan residents work in agriculturally-related industries for every one on the farm. Agricultural economist Robert C. Kramer reports Michigan has 130,000 farms employing 230,000 workers. Over 600,000 people hold down jobs in agriculturally-related industries.

"Food processors, farm suppliers, machinery companies, and countless other firms deal with farm people. They all need people who can speak the farmer's language. Rural boys and girls will find their farm backgrounds a valuable job asset," Kramer said.

One of the major projects of NJVGA in 1960 will be sponsorship of contests such as the Production and Marketing contest, designed to encourage an interest in the growing and marketing of horticultural crops. It requires detailed records as to project organization, production, costs and returns, cultural practices, and methods of marketing or use.

Identification of the more important varieties of vegetables, diseases and insects, weeds, vegetable seeds, grade defects, and nutrient deficiency symptoms is the basis of the Judging, Grading, and Identification contest.

The National Demonstration contest is designed to stimulate careful planning, a thorough knowledge and ability to explain by word, the why and how of various production practices, soil fertility and improvement methods, and marketing procedures.

Any NJVGA member between the ages of 14 and 21 may compete in the contests. To participate in the Production and Marketing contest, he must have also completed at least one previous year of horticultural project work. Awards will be made at the 26th annual convention to be held at Colorado Springs, Colo., December 4 to 8. And remembering economist Kramer's remarks on the value of a rural background, contestants will have an excellent opportunity to increase their knowledge of agriculture and related industries.

For information on NJVGA write Grant B. Snyder, Bowditch Hall, University of Massachusetts, Amherst, Mass.

APRIL, 1960

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PRODUCTS

**FOR TOP POTATO
And Vegetable
QUALITY
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YIELD
This Season . . .**

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SAFE • SURE • ECONOMICAL

Thoroughly tested copper-zinc-chromate complex that has provided excellent results for grower and in agricultural experiment stations. (One of the "Top Yielding" Fungicides in 1958-59 tests.)

* Controls diseases on potatoes, tomatoes, cucurbits, peanuts, citrus, avocados, azaleas and turf, including such problems as Late Blight, Early Blight, Gray Leaf Spot, Bacterial Leaf Spot and Downy Mildew!

* Improves quality . . . by supplying needed trace elements.

* Safe to use . . . no residual tolerance restrictions on harvested crops.

* Sticks better . . . as spray or dust.

* Economical . . . does not break down in storage.



NUTRI-LEAF* "60"

**SOLUBLE FERTILIZER—Safe, Simple to Use!
Increase Yields with Pin-Point Feeding!**

Mix with insecticides and fungicides . . . to provide safe, easy nourishment for plants. Feeds quickly and economically.

* 20-20-20 analysis, with sticker and spreader.

* Reg. TM

TOMATO-SET HORMONE SPRAY

Increases Set-Size-Yield!

Four years of extensive research work have demonstrated that you can effectively apply Tomato-Set with your regular insecticide and fungicide programs to increase the set, fruit size and yields of tomatoes.

* Insures good crop during period when weather is unfavorable for fruit setting.

* Spray when blossoms are opening.

SEE YOUR MILLER DEALER FOR THIS GREAT COMBINATION!

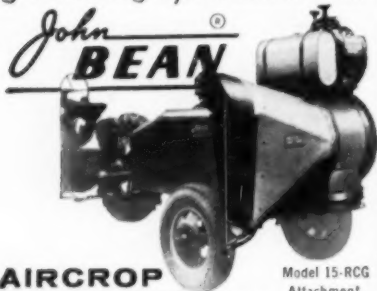
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Ask your John BEAN Dealer to demonstrate!



PLANT GROWER'S CORNER

By RAY SHELDRAKE

APRIL is the time of year in a plant grower's life when space suddenly begins to disappear. With few exceptions, every one of us will wish that we had built that last greenhouse a little wider or a lot longer. April is the month when plants are spotted out from the seed flat into other flats or directly into dozen packs. A seedling flat with 800 to 1000 or more seedlings will suddenly expand into 60 to 90 dozen packs.

This month I will try to go over some of the common plant growing structures with particular emphasis on the use of plastics. The first question you need to answer for yourself is: "Do I have enough space for that peak period in April or May?" If not, you have a choice of building cold frames with standard sash or covering homemade sash with plastic, building a lower cost plastic house or building a permanent glass greenhouse.

Many growers do not want to invest a large sum in a glass house for only about eight weeks of use. However, before you build anything, I

would urge you to get a price on a glass house. Over the long haul, say 20 to 30 years, you will undoubtedly come out better with a good permanent glass house. Do not neglect to figure the value as a tax deduction. This can change the picture of costs considerably. Of course, from an assessed valuation standpoint, many do not want to put up anything permanent.

Cold frames are still most excellent for plant growing but very inefficient to operate from the labor standpoint. Ventilating and watering are very time consuming but many plant growers feel that they get a better quality plant in a frame.

If frames are built and covered with plastic, use more pitch than is generally suggested for glass frames. If the pitch is inadequate, water will collect on the plastic during a rain and sag the plastic. Never put a lath on lower edge of sash (i.e., on top of plastic) or this will impede the flow of water.

Frequently, cold frames covered with plastic are made wider than the conventional 6 feet encountered with glass sash. Good sash for plastic covering can be made from 5/4-inch

"Always Read The Fine Print" Said the Vegetable Grower to the Seedsman

"My gran'pappy always said, read the fine print before you buy," remarked the Vegetable Grower as he reached into Joe's private stock of crisp, raw carrots.

He took a bite and after a moment continued.

"That fine print on an SRS seed bag for instance. Under that big type that says 'Breeder Verified Seeds'."

He fished in his pocket for his reading glasses and waved them at the sack of vegetable seeds. "How many of you have read that?" he demanded. "Know what it says, Joe?"

He handed the bag to the Seed Research Specialist dealer.

"It says here, 'Seed Research Specialists, Incorporated, verifies that the Specialist Breeders Stock in this package, if unopened, were reproduced from proven parent breeding stock developed and/or approved by the breeding staff of SRS...'"

"Right, Joe," said the V.G. "But suppose you just translate that into ordinary English."

The SRS man rose gamely to the challenge.

"Means just one thing," he declared. "So long as that Flexi-Carton, or the Protecto-Can, for that matter, remains sealed, you can bet your bottom dollar that the SRS breeder division responsible for production knows the parents of the seed and no foolin'."

The Vegetable Grower munched away on the carrot with satisfaction.

"Go on, Joe," he urged. "Read the fine print."



Lawrence Robinson, Jr., executive vice-president of Seed Research Specialists, with sealed Flexi-Carton of Breeder Verified vegetable seeds.

"Let's see. . . approved by the breeding staff of SRS and are the product of a seed crop continuously inspected by the trained, specialized production and variety experts of the breeder member company shown on this label, and found to meet the quality, vigor, and freedom from disease standards established by the SRS Research department."

After a pause, the Vegetable Grower asked, "Is that all?"

The Seed Research Specialist dealer pointed to the printing. "See those signatures?" he asked. "The top signature is the president of SRS. He has been a vegetable specialist all his life. Known all over the industry. And take the next one: James W. Chaney. That's Bill Chaney, director of quality control. Everybody in the seed business knows how his staff keeps watch over every step in production, after the research staff okays the variety for growing seed. Quality Control tests the plants for disease resistance for vigor, for yield under field conditions, for maintaining the characteristics that the hybridizer wanted for better vegetables. That's what it means."

The Vegetable Grower put away his glasses.

"Thanks, Joe," he said. "I can't read with these darn glasses, and my gran'pappy always said . . ."

"I know," grinned the SRS dealer, "your gran'pappy always said read the fine print before you buy."

"That's right, Joe. Eat enough of these carrots and I can read the fine print by myself. But thanks anyway. Give me my bag of seed and I'll be running along."

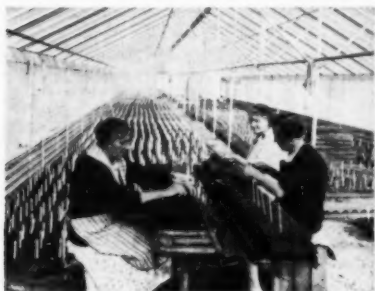
FREE—Send us a card for your free subscription to *The Seed Specialist*, filled every month with authentic facts and features for the commercial vegetable grower. Write: Seed Specialist, Box 3091, Modesto, Calif., U.S.A.

lumber, 2 inches wide. These can be screwed together with No. 10 screws, 3 inches long. Painting really pays in lengthening the life of the wood. A good prime coat can be put on rapidly.

Four or 6 mil (.004 or .006 inch) polyethylene works very well for this type of covering and should last two to three years if stored in a dark place after May 15 to 30, depending upon where you are located. Southern growers could store them away much earlier. If covered with weatherable Mylar and carefully stored away, they should last 5 to 10 years.

Single layer plastic does not give much frost protection. An inner layer with an air space of 1 to 2 inches is highly beneficial and worthwhile.

If you go to the trouble of making sash and covering with plastic for a cold frame or hotbed, you will ultimately wish you had raised the roof a little more and had a more efficient unit that you could walk



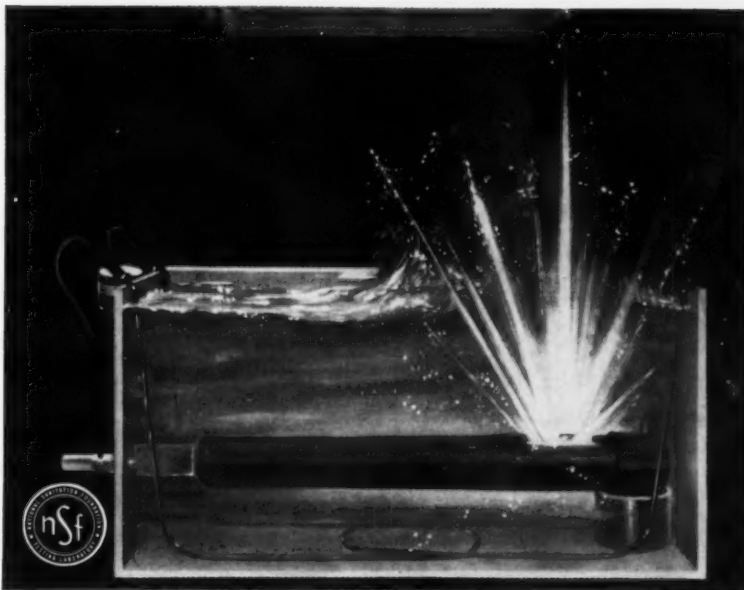
During peak periods plastic greenhouse provides extra space needed in plant growing operation.

around in. Then you would have a plastic greenhouse.

The type we use for spring plant growing is nothing more or less than a cold frame with sash, but it has the decided advantage of labor efficiency; it has controlled heat and can be automatically ventilated with a large fan. Plant growth is excellent and actual difference in cost per square foot over good cold frames is not too much greater. I believe the difference is more than made up when you consider the advantages.

In any case, when building a plastic greenhouse as an addition to your plant growing operation, make it neat. Paint the wood members before covering, build it level, and support it properly. Most university experiment stations as well as some seed houses and plastic companies offer proven plans.

The best foundation is a concrete footing with a poured or block wall. Next best would be treated posts (we use cuprinol and then paint) set at least 3 feet down. Never treat



We rupture our plastic pipe so yours won't

This explosion marks the end of the short but useful life of a piece of USS National Polyethylene Pipe. We deliberately burst it during a test with pressure that would greatly exceed the strain of normal service.

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USS National Polyethylene Pipe comes in lengths up to 400', in diameters from $\frac{1}{2}$ " to 6". Insert fittings are also available. Write National Tube Division, United States Steel, 525 William Penn Place, Pittsburgh 30, Pa.

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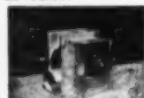
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greenhouse wood with PCP (pentachloro-phenol). The fumes will kill plants. Generally, 4x4-inch posts are used. A double 2x4 plate is advisable and a coat of cuprinol followed by paint (especially on all cut surfaces) will prolong the life of the wood.

The rafters should be 2x4's on a panel house and are preferred even when covering with plastic directly. Lumber 2x2 inch can be used if properly supported. Brace the framework securely to prevent movement of the house in high winds.

Deciding on the degree of slope is one point where growers sometime seem impractical. Why not use as much slope as on a glass house? Of course, in areas of no snow, the only slope needed is sufficient for rain water to run off. The flatter the house, generally, the greater the drip problems on the inside. Too many houses have been built in the snowy North with insufficient slope.

Vents along the ridge are essential unless automatic fans are used. On a hot day with the house filled with plants that are almost ready and you are trying desperately to hold them back, it is imperative to have plenty of ventilation. With a panel house, you can slide down as many panels as you need or even take them off.

For automatic fan cooling, use a fan with large enough capacity (rated in cubic feet per minute) to change the air once per minute. Calculate the volume of air in your house and then get a fan with the proper capacity. Run it from a thermostat. These fan-cooled houses are very efficient. Most plants will finish off better if you can keep the temperature below 70°F. during the day and 50 to 55°F. at night.

Polyethylene (4 mil) is still a good buy for use on plastic houses. The initial cost is low and if used on panels for March, April, and May will last three years in areas in the North. Vinyl formulations of 4-, 8-, and 12-mil thickness make a very attractive job and will last slightly longer than polyethylene. Vinyls seem to have one drawback in common; they attract dirt and need washing. Weatherable Mylar is probably the longest lasting material being offered at the present.

An inner layer of plastic on a greenhouse has many advantages: fuel costs are cut about 40%, drip problems are virtually eliminated, and frequency of watering the plants is significantly reduced. A 2-mil layer of polyethylene serves as a good inner layer.

THE END.

Construction details for Cornell University plastic panel greenhouse, and reprints of current articles on plastic greenhouses are available from **AMERICAN VEGETABLE GROWER**, Willoughby, Ohio, for 50 cents a set.

FOR OUR READERS

Because Roadside Stand Sales are becoming more important and profitable, we thought we could help you by making Roadside Stand Signs available at the lowest cost.

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CABBAGE

Disease Strikes

ALTERNARIA black leafspot disease caused severe losses in many cabbage fields in New York, Pennsylvania, and New Jersey in 1959. Although this fungus disease has been detected in minor amounts in previous years, this was by far its most severe outbreak in recent years. Continued high mean temperatures throughout August, September, and early October coupled with frequent dew periods or irrigation no doubt were especially favorable for the development and spread of the disease.

In late August typical Alternaria target-like spots were numerous on the lower leaves and fruiting heavily. Soon spotting appeared on the young cover leaves of the developing heads accompanied by bacterial soft rot.

Warm weather permitted rapid deterioration of these cover leaves. When harvested, these spotted heads required severe stripping with only a small white head remaining. Yields were drastically reduced in many fields of late market cabbage.

All isolations made in New York were identified as *Alternaria brassicicola*. In limited observations, Eastern Ballhead and Badger Ballhead appeared to have considerable resistance while most popular varieties were very susceptible.

Although seed treatment with hot water and long rotation are helpful practices, the use of a fungicide such as maneb, zinab, or nabam with zinc is the only certain control measure. Growers who used any of these chemicals three or four times right along with their regular insecticide sprays had excellent results and harvested high yields of good quality cabbage. —Arden Sherf, Cornell University, Ithaca, N.Y.



Alternaria black leafspot disease lowered 1959 cabbage yields in the Northeast.

APRIL, 1960

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GREENHOUSE CROPS

Young Growers' School

A PLAN to help young greenhouse growers of the Cleveland, Ohio, area to know each other better is underway.

For every senior greenhouse operator there are at least one or two junior operators. Most veteran growers are acquainted with their neighbors and distant operators through ears of contact and association meetings. This is not true of the younger generation. They have tended the greenhouse while father looked over another grower's crop and swapped experiences on varieties, cultural methods, and marketing problems.

Shortly after the writer came on the job as Cuyahoga County (Ohio) agricultural agent he was urged to help solve this junior grower problem. One grower's son-in-law said that after three years he still didn't know his nearby neighbors.

Another difficulty has been lack of acquaintance between the four greenhouse districts of the Cleveland area.

The need for some type of activity was requested by the greenhouse people. How, they asked, can we go about getting younger growers ac-

quainted? Forest Weiser, of Thompson-Allen Greenhouse, Cleveland, Ohio, suggested two nearby growers, Roger Walter and Earl Lindsey, help on a committee. Soon Paul Rice, Calvin Kraushaar, and Glen Cook were asked to represent the Brooklyn Heights area. An outstanding young grower and former extension vegetable specialist, Edward Drollinger, Medina, also agreed to help.

First of all, the members of this committee had to become acquainted. They decided an educational school might serve the purpose and objectives they had in mind. The first objective was to encourage friendliness and wider acquaintance; the second, to increase technical knowledge in greenhouse vegetable growing.

Working with the county agent and William Brooks, extension specialist, the committee, under chairman Forest Weiser, planned an eight-lesson school. Research people from Ohio Agricultural Experiment Station and Ohio State University assisted in teaching the lessons. A coffee break divided the evening sessions and helped the students get acquainted.

By holding the program at a school, the notebooks and literature created a classroom atmosphere. But di-



Looking over the crop at Thompson-Allen greenhouse are Forest Weiser, left, and Earl Lindsey, who helped plan the young growers' program.

plomas were not given and final examinations were self-graded.

Evaluation questionnaires urged the committee to have another school, which was completed last fall. A grower with long experience wrote: "Both senior and junior growers need to be kept up-to-date on cultural methods. It is cheaper to hire maintenance people, while we concentrate on growing."

Results are becoming apparent after two years of the program. More attention has been given to soil tests, heat and water in relation to available sunlight, and proper use of plant pesticides. One young grower was

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Round	1,000 to 9,000			13.75
S-1428C 4-in. Diameter	10,000 to 49,000			12.75
Round	50,000 and over	500	33 lbs.	11.50
S-1428E 4-in. Diameter	500 to 2,000			28.75
Round	2,500 to 10,000			26.25
S-1428F 4-in. Diameter	11,000 and over	500	30 lbs.	24.75
Round	500 to 2,000			28.75
Azalea	2,500 to 9,500			26.25
	10,000 and over			24.75

VAL-PEAT POTS—SQUARE SIZES

Inside Top Dimension of Pot	Quantity	Number Pots per Carton	Approx. Wt. of Carton	Price per 1000
S-1428 1 1/4-in. Diameter	2,500 to 17,500	2500	28 lbs.	\$ 6.90
Square	20,000 to 70,000			6.40
	72,500 and over			5.90
S-1428F 2 1/4-in. Diameter	2,000 to 18,000	2000	39 lbs.	10.50
Square	20,000 to 74,000			9.75
	76,000 and over			9.00
S-1428D 3-in. Diameter	1,000 to 9,000	1000	38 lbs.	17.25
Square	10,000 to 49,000			16.00
	50,000 and over			14.75

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For some growing purposes, these lighter weight pots are preferred.

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2 1/4-in. Square No. 10	2,500 to 17,000	2500	35 lbs.	\$7.50
	20,000 to 72,500			7.00
	75,000 and over			6.50

Inside top Dimension of pot	Quantity	pots per Carton	Wt. of Carton	Price per 1000
3-in. Square No. 10	1,000 to 9,000	1000	32 lbs.	\$14.50
	10,000 to 49,000			13.25
	50,000 and over			12.00

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able to move up to a higher paying position. Others are giving refresher courses to their fathers.

The first school registered 92 students, and 83 enrolled for the following advanced course. Twilight tours and a bus trip contributed to getting the young growers better acquainted. We now call each other by our first name and we know the location of each grower's greenhouse.

Additional twilight greenhouse tours will go into the four greenhouse areas of greater Cleveland this spring and fall.

The planning committee considered its job completed, its mission accomplished, and thought it was time to close the books. That was their idea until some alumni asked, "When is the next school?"—Fred K. Buscher.

POTATOES

New Variety

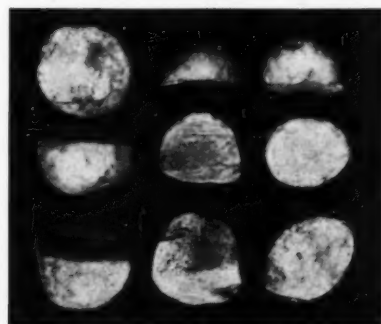
ALLEHANNA is the name of the extra early variety of potato developed by Dr. E. L. Nixon. It is the result of years of breeding tests at Potato City experimental farms of Pennsylvania Co-operative Potato Growers Association.

The name, according to Dr. Nixon, is a combination derived from the names of the two largest rivers in Pennsylvania, the Allegheny and the Susquehanna.

Harry Friedline, Boswell, Pa., says the new potato, which was tried on his farm last summer, showed a yield of 170 bushels per acre more than the Katahdin variety.

Healing Precut Seed

RECENT USDA tests in commercial seed-producing areas have shown that precutting potato seed far ahead of planting time usually does not affect the stand and yield of potatoes provided the seed pieces are held under conditions



Precut potato seed pieces arrive at destination in heated-over condition if properly handled during transit.

APRIL, 1960

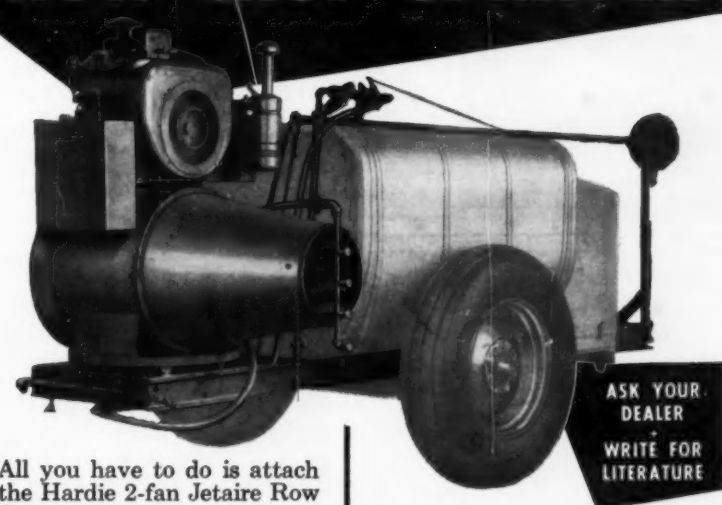
favorable for healing of the cut surfaces.

In the tests conducted by research workers H. W. Hruschka, W. L. Smith, Jr., and H. V. Toko, five 50,000-pound carloads of certified Katahdin seed potatoes were machine precut in Maine during March and April, immediately placed into 100-pound burlap bags, and loaded (500 bags per car) into preheated, insulated, fan-equipped refrigerator railroad cars.

Each bunker contained one 13,000-B.T.U. per hour alcohol heater with thermostat set at 60° F. for operation during preheating, loading, and transit.

Relative humidity in the car atmosphere was generally 90% or higher. Temperatures of potatoes in storage prior to loading averaged 42, 46, 47, and 48° respectively for the five tests. All potato temperatures were at least 50° within one day, 55° within two days, and 60°

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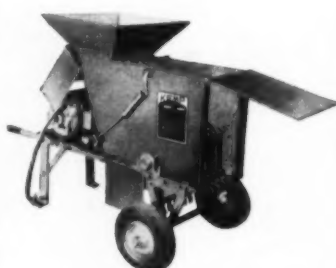
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within three days following cutting
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Temperatures of potato seed
pieces rose steadily during transit
and ranged from 61° to 83° F. at
time of unloading.

The precut seed pieces arrived at
destination in excellent healed-over
condition ready to store or plant.
Weight loss during transit was low.

The test potatoes were distributed
to about 125 growers in eastern
states.

Further experiment will be neces-
sary before any broad general con-
clusions can be reached, according
to the research workers. Possible
benefits, however, include reduction
of overhead costs of seed production
by reducing required acreage, pro-
duction of higher quality seed stock,
reduction of seed-piece decay, im-
proved emergence by the start of
sprouting in transit, and reduction
in seed cutting costs.

A detailed report on this test en-
titled *Healing Precut Potato Seed
Pieces During Transit* is available
from superintendent of Documents,
Government Printing Office, Wash-
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MR. BUG FIGHTS BACK

(Continued from page 11)

potato beetle has followed a very
similar pattern to that of the flea
beetle. Another beetle, the southern
potato wireworm, has become resist-
ant to such chlorinated materials as
aldrin, dieldrin, chlordane, and he-
ptachlor in the southeastern part of
the country.

The first lepidopterous insect to
show resistance to the newer inse-
cticides was the imported cabbage-
worm in Wisconsin in 1951. These
insects have been calculated to be
65 times as resistant as worms in
1944. The cabbage looper, too, has
become DDT-resistant in many
parts of the U.S. and in Canada.
Both of these pests can be effectively
controlled by endrin but this ma-
terial can be used only up to the time
of heading on cabbage. Beyond that
stage Wisconsin recommends a com-
bination of toxaphene and parathion
with a last-minute treatment before
harvest of Phosdrin because of its
short residual activity.

After 1953, such previously excel-
lent control materials as dieldrin,
heptachlor, aldrin, and chlordane

became almost useless for the control of onion maggots, first in Washington and other parts of the Pacific Northwest and then in the Midwest, Ontario, and other locations. Substitute control materials have been found among the phosphate insecticides and include ethion, Trithion, Diazinon, and VC-13.

Another onion pest, the onion thrips, has been found to be resistant to several chlorinated hydrocarbons in the Rio Grande Valley area of Texas.

The green peach aphid has become resistant to some phosphate insecticides (malathion, parathion, TEPP, and metacide) in Washington and elsewhere and the potato aphid has shown similar tolerances. This means that we must be alert to the development in insects of resistance to the phosphate materials in addition to the chlorinated insecticides.

Some other insects which have been reported to be resistant to insecticides include: carrot rust fly which has recently become highly resistant to previously very effective chlorinated materials in the Pacific Northwest; garden centipede, resistant to DDT in Indiana; tomato hornworm, to the same material in Florida; lygus bugs, to some insecticides in several parts of the country.

In addition, other entomologists indicate that there are numerous unreported instances of resistance so that there may be twice as many insects involved in the resistance picture as have been reported.

A word about how resistant populations build up. The ideal condition for rapid build-up of resistance is to have an insect which has several generations per year, a restricted host range, does not migrate or spread any great distance, and to which repeated applications of the same insecticide are applied to all stages of its life cycle.

Resistant populations are produced right in the area where the problem appears and do not spread from one area to another, although the development of resistance in ever-expanding areas gives this impression. The unjust aspect of this is that the grower who does the best and most consistent job of insect control is likely to develop resistance on his own crops first.

Keeping in mind the above points, it might be possible to predict which insects will develop resistance next. We might consider the vegetable root maggots as an example.

The cabbage maggot has a wide host range but it is still restricted to wild and cultivated cruciferous plants, not all of which are regularly



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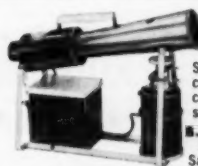
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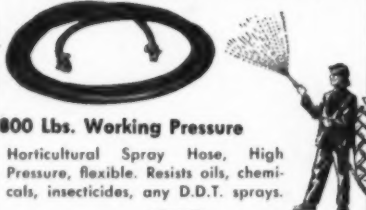
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treated with insecticides. Thus it would be expected that the cabbage maggot would not develop resistance as quickly as the onion maggot, which is restricted largely to one crop, but it would appear logical that it would become resistant next.

The seed-corn maggot has an extremely wide range of cultivated and weed hosts, many of which are never treated with insecticides, so that it would be expected to be the last of these three insects to acquire resistance, if ever.

The six-spotted leafhopper (which transmits the yellows virus to lettuce, celery, and carrots) and the potato leafhopper, in the Midwest at least, migrate north each year from untreated crops and dilute local populations to the extent that markedly resistant populations are not likely to appear.

How can the problem of insect resistance be handled best? The situation would be improved if a better reporting system were in effect so that workers would know what problems were arising elsewhere and be alerted for them in their own areas. Researchers should then prepare tests so that they can tell when resistance is beginning to appear so that insecticides can be changed before crop failures occur. While the presently used insecticides are still giving good control, new materials must be checked as possible substitutes when the recommended materials fail.

The question arises as to whether one insecticide should be used exclusively or a number of materials be used to prolong the time before resistance appears. It is the writer's own opinion, and this is not shared by all entomologists by any means, that one material should be used until it begins to become less efficient and then switch to an entirely different type of insecticide before a crop failure occurs.

It is admitted that if two or more insecticides are used at the same time or alternately by applications or seasons that resistance will not appear as quickly as when only one material has been used.

But what happens when resistance finally occurs to all of the insecticides being used at the same time and there is no place to turn? It might also be asked what happens when we have run out of one insecticide after another and come to the last one on the shelf. But by this method we at least know where we stand. When the last material is reached let us all hope that by then the toxicologists and physiologists have made a major breakthrough and have permanently solved the resistance problem for us. **THE END.**

AMERICAN VEGETABLE GROWER

OKLAHOMA

(Continued from page 15)

cowpeas) are an important crop. Jim Bramlett, manager of Griffin Canning Company plant at Stigler in Haskell County, estimates at least 6000 acres of southern peas in his area alone and George Jones, of Spiro in LeFlore County, personally grows 1500 acres of southern peas. The main variety is Purple Hull but considerable California #5 Black-eye and Cream 40 also are grown. Most of the peas are hand-picked by local and migratory labor. Sometimes the vines are mowed, windrowed, and harvested with a combine following one or two hand pickings.

Research designed to find a high quality variety suitable for machine harvest may result in a profitable



Sweetpotato slips are grown by George Hedger, Idabel, for sale as well as for his own fields.

expansion of the southern pea industry. Exact data on the size and value of the southern pea crop are not available because they are included with cowpeas and reported as a field crop.

Spinach is the third important vegetable grown in the Arkansas River Valley as well as in the bottom lands in the eastern tier of counties. In the Choska Bottoms in a bend of the Arkansas River near Haskell, Gordon Childress is a typical good grower who raises from 100 to 250 acres of spinach under verbal contract with a local processor. In addition, he grows 30 acres of turnip greens, 30 acres of mustard greens, 60 acres of watermelons, and a few field crops.

To grow spinach on this flat land Childress plows the soil so that there is a shallow drainage ditch about every 120 feet. He does not rotate spinach with other crops unless disease enters the field or weeds like

(Continued on page 51)

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4 in	Standard	Wt.	Azalea	Wt.
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1,000 to 9,000	1,000	\$17.25M 37	\$17.25M 37	
10,000 to 49,000		\$16.00M	\$12.75M	
2 1/4 in	Standard	Wt.	Azalea	Wt.
2,000 to 18,000	2,000	\$10.50M 36	\$7.75M 29	
20,000 to 74,000		\$9.75M	\$7.25M	
1 3/4 in	Standard	Wt.	Azalea	Wt.
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20,000 to 72,500		\$6.49M		

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10,000 to 49,000		\$13.25M	\$12.00M	
2 1/4 in	Standard	Wt.	Azalea	Wt.
2,500 to 17,500	2,500	\$7.50M 32	\$7.00M	
20,000 to 72,500		\$7.00M	\$6.50M	

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12' x 200'	.002 Gauge Clear	15.16	10' x 100'	.006 Gauge Black and Clear	18.94
3' x 100'	.004 Gauge Clear	3.79	16' x 100'	.006 Gauge Black and Clear	30.31
10' x 100'	.004 Gauge Black and Clear	12.63	32' x 100'	.006 Gauge Black and Clear	60.62

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and bulbs. This is a rather special catalog this year because Walter S. Schell, Inc., is celebrating its 50th anniversary. If you will write to them at the Schell Bldg., 10th and Market Sts., Harrisburg, Pa., they will be delighted to send their golden anniversary catalog to you.



Keep A Cool Head

The Space Age is affecting all of us, and as growers we will be particularly interested in a new "one-man air conditioner" which was devised as a result of research on space suits. The helmet, as shown above, not only cools and dries the air, but filters out dust, pollen, fungus, etc. The lightweight fiberglass unit has a face-plate of clear shatter-proof plastic that will protect you against flying objects. Why not write to Bob Mueller, Jamieson Laboratories, Inc., 2200 Colorado Ave., Santa Monica, Calif., and ask him to tell you more about this new helmet?

50

New for You

Over And Out

Growers of extensive vegetable acreages in western New York are using a new method of communication which allows them to do a more efficient and profitable job. The system is a very simple two-way radio which lets them talk to several places within a range of 2 to 10 miles in a



twinkling of an eye. The unit is low in cost and has already proven itself to the profit-minded grower. W. D. Jefferson, Ray Jefferson Inc., 40 East Merrick Rd., Freeport, N. Y., can tell you about the many models available. Write him today.



Less Costly Handling

The tomatoes you see pictured above are just as they arrived from the grower. There wasn't a bruised or flattened tomato in the entire shipment, and they were easily and quickly set up as a display. Buyers all over the country are enthusiastic about this new grower package. You would do well to investigate these trays for your own use. Ask Otto

Pick, at Friday Pack Company, 1412 Public Service Bldg., Portland 4, Ore., to tell you more about the Friday Cushion-Pak trays.

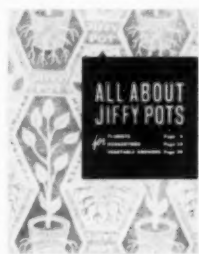


High Stepper

Vegetable growers in all parts of the country are quickly learning the importance of consistent and well-engineered irrigation. Last summer growers who had irrigation systems and units like the POWER-ROLL pictured above, where one man can handle the irrigation equipment for an entire vegetable planting in short order, found that they more than doubled their profits. The 5-foot-high wheels make it possible for vegetable growers to use the equipment on almost every type of vegetable and in every kind of growing stage. The new equipment has a low price tag and bears looking into. Write Wade Newbegin, R. M. Wade & Co., 1919 N. W. Thurman St., Portland 9, Ore., and he'll send you all the facts.

Grows In a Jiffy

Why do plants grow faster when started in peat pots? No two growers seem to agree on the reason. Is it because of the nutrients in the pot walls? The superior aeration? Or is it the moisture control? Regardless of why, profit-minded growers agree that plants started this way actually grow faster and stronger. In almost every area, growers who have used peat pots have beaten the market by as much as two weeks. A new booklet, called *All About Jiffy Pots*, tells you about the many advantages of using these pots in your vegetable growing operation. Why not write to Carl Ball, Geo. J. Ball, Inc., West Chicago, Ill., and find out how this method of growing can fit into your operation? They will rush the booklet to you posthaste.



AMERICAN VEGETABLE GROWER

OKLAHOMA

(Continued from page 49)

henbit become troublesome. Long-standing Bloomsdale is a popular variety but Hybrid #7 may soon take the lead because of its higher yields. Childless drills 15 to 20 pounds of seed per acre in 7-inch rows in October and fertilizes with 200 to 600 pounds per acre of ammonium nitrate, depending on soil tests.

If the weather is co-operative, he will cut 4 to 5 tons per acre in December and the same amount

WINTER RETIRES

Retirement of Dr. Floyd L. Winter as director of the breeding and research department of Asgrow Seed Company, New Haven, Conn., was recently announced by the company. Last year Dr. Winter observed the completion of 25 years with Asgrow, during which time he was responsible for the introduction of more than 100 vegetable varieties.



again in March plus about 2 tons or a little more per acre in May.

Childless has cut 20 acres of spinach, yielding 115 tons, in a single day with his special harvesting machine. He and other growers or processing companies who own machines also do custom work to cut the 14,300 tons of processed spinach on almost 5000 acres grown in Oklahoma. Usually a few hundred acres of spinach are cut each spring and winter for the fresh market but the bulk of the crop is processed for a total of almost \$750,000.

Although many other vegetables like onions, radishes, and cucurbits are grown primarily for local sale, the nine vegetables discussed are most important in Oklahoma. Many growers raise two or three vegetable crops on the same land each year. For example, snap beans or southern peas often are followed by a fall planting of spinach which is last harvested in the spring in time to plant beans or peas again. The land and climate also are excellent for production of asparagus and okra.

Oklahoma is an attractive frontier for expansion in the commercial production of many vegetables. We believe our state will become more important in vegetable production as land now in this use in many other states becomes swallowed by urban developments. Thousands of acres of sandy loam soil near the center of the United States and unusual amounts of water for irrigation together with a relatively long growing season are mighty good assets.

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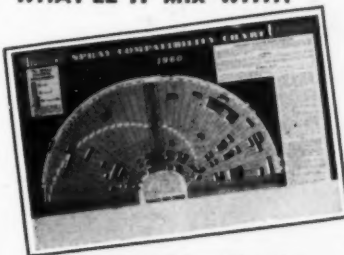
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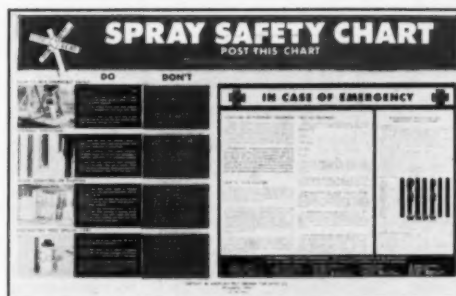
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Know the DO'S and DON'TS of SAFE spraying practice. WHICH respirators and protective clothing are recommended for specific chemicals. WHAT to do if you feel ill while spraying. EVERY grower, EVERY spray crew should be equipped with this chart. Make this season's spraying the SAFEST EVER with the AMERICAN VEGETABLE GROWER Spray Safety Chart.

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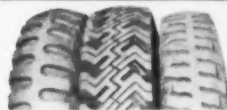
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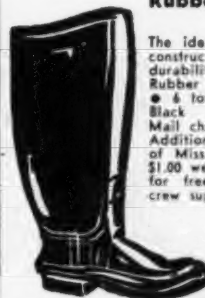
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Quantity prices on request. Coin or your check must accompany each order.

American Vegetable Grower

Willoughby, Ohio

He's in There, Fighting!

BOB FREDERICK is a young man going places in a hurry. Newly arrived in Washington as executive secretary of Vegetable Growers Association of America, he has some definite ideas on defending vegetable growers' interests in the Halls of Congress. All indications are that under his guidance VGAA will become a potent force on the Washington scene.

After graduating from Ohio State University where he majored in horticulture, Bob returned to the family fruit farm where he grew and marketed fresh produce until a turnpike cut a huge swath through the farm. He subsequently spent several years as an agricultural salesman and then took over as marketing agent in Indiana for the extension service. His training and practical experience give him a broad knowledge of growers' problems that will serve him well in Washington.

Since the first of the year, Bob has attended vegetable meetings in New Mexico, New York, New Jersey, Ohio, Pennsylvania, Indiana, Connecticut, and Michigan. By such personal contact with growers he is endeavoring to build up strong grass roots support. Financing of VGAA is a major problem and Bob feels that the secret of VGAA's success is to obtain the backing of active local and state vegetable associations which realize the necessity for strong representation in Washington.

With each passing year more and more legislative attempts are made to infringe on the rights of fruit and vegetable producers. Those who weren't convinced of this before cranberry growers were sold down the river should be now.

Bob Frederick believes there is a great future for VGAA. He and the association have the staunch backing of AMERICAN VEGETABLE GROWER.

The Potential Is There . . .

WE lose and we gain. Louis Leckler, as told in the March issue, lost his roadside business; we gained the superhighway that caused his loss.

Unfortunately as Leckler's experience has been, the death knell for roadside marketing has not been sounded. On the contrary—roadside stands are on the increase throughout the country. In Massachusetts, for example, the estimated total is now 1200.

Growers who have taken on the job of retailing find that roadside marketing is one way of eliminating the price spread between consumer and producer. Farm fresh vegetables and fruits, they have learned, have great consumer appeal.

One difficulty with roadside marketing that must be carefully watched is that the "tail may get to wagging the dog." If you are operating your own stand you may find before long that you are spending long hours selling your products and as a result your vegetable fields are suffering. You can defeat in one season the very purpose you established the stand—that of providing quality products direct to your public.

When you find yourself up against a situation of this kind it is time to hire some help. But remember—

good help is difficult to get and hold because roadside marketing hours are long and most sales are made on weekends and holidays.

Despite the shortcomings, if you are located on a well-traveled highway you will want to seriously consider selling direct if you are not already doing so. Our country is a nation on wheels and roadside marketing fits well into our present manner of living. The desire of city people to visit the country on week-

ends and holidays is nationwide as is the desire for farm-fresh products.

Perhaps another reason for the popularity of roadside markets is, paradoxically, the growth of chain stores. The chain store is reputed to be sensitive to the housewife's every wish and desire; however, quite the opposite may be true. The chain store buyer prefers goodlooking but unripe produce that "wears" well. Also, chains prefer to purchase items

QUOTE-OF-THE-MONTH

"What a man needs in gardening is a cast-iron back, with a hinge in it."

—Charles Dudley Warner

that are uniformly packaged and in constant supply.

A few experiences buying unripe produce at chain stores and the housewife becomes a potential customer of roadside markets where quality and flavorful products abound at a reasonable price—a combination the chains cannot equal.

The ultimate in roadside marketing is the year-around market that features meats and poultry as well as vegetables and fruits. Such a market would be reasonably near a big city but would preserve the farm atmosphere. It may prove worth your while to investigate the possibilities in your area.

In the event you are stymied as to how to start, AMERICAN VEGETABLE GROWER's roadside plan may serve to inspire you. This plan helped Scotian Gold Co-operative when they decided to build a chain of roadside markets in Nova Scotia and New Brunswick.

Scotian Gold markets are operated by local co-ops in the province under an agreement with Scotian Gold. The co-op must agree to maintain the high standards set by Scotian Gold. Each market is of the same design and distinctive with its bright red roof and gleaming white building.

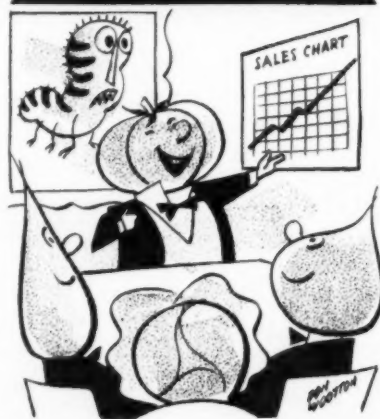
There may be the germ of a thought in this idea for members of co-ops in the U. S. Roadside markets, as in the case of Scotian Gold, may be another outlet for members' products.

Coming Next Month

- Fighting the Disease Battle
- Air-Blast Spraying
- Paper Mulch for Warm Season Crops
- National Canners Plan Residue Controls

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Broccoli Cabbage Cauliflower	Cabbage looper, imported cabbage worm, diamond-back moth larvae	Up to formation of edible parts
Cucumbers Melons Squash	Aphids	Up to 14 days prior to harvest
Eggplants, Peppers	Aphids	Up to 7 days prior to harvest
Potatoes	Flea beetle, Colorado potato beetle, leafhoppers, aphids, southern armyworm, green stink bug, potato tuberworm, leaf-footed plant bug	
Tomatoes	Aphids, whitefly	Up to 7 days prior to harvest

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